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COMPUTERWORLD

Competition = bargains for Windows software buyers

BY JAMES DALY
CW STAFF

The success of Microsoft Corp.'s Windows 3.0 has sparked a price war to get users to buy applications tailored to it.

Come and get it
Recent price promotions have made PC software a buyer's market

Product	List price	Promotion price
Borland Objectvision	$495	$99.95
Borland Quattro Pro	$495	$99.95 to Lotus' 1-2-3 users
Lotus Ami Pro	$495	Free with 1-2-3 purchase
Microsoft Excel 3.0	$495	$129
Microsoft Word for Windows	$495	$129

CW Chart: Paul Mock

Microsoft fanned those competitive flames last week with a qualified, limited-time offer that cuts prices on its Excel spreadsheet and Microsoft Word for Windows word processor from $495 to $129. Borland International, Inc. offered a rock-bottom price on a new Windows programming tool last week. Lotus Development Corp. earlier launched a giveaway of a newly acquired word processor.

"The name of the game is getting that huge installed base," said Ryan Rosenberg, a member of the Software Entrepreneurs' Forum and New Wave programs manager at Hewlett-Packard Co.

Analysts said recent newspaper and direct-mail campaigns are effective because they go for users' most vulnerable spot: their wallets. "The beauty of the approach is that it is direct and immediate," said Jeff Tarter, editor of Watertown, Mass.-based "Softletter." "Telling a user up front how much he is going to save is a

Continued on page 101

IBM, Novell in LAN power play

BY JOANIE WEXLER
and JIM NASH
CW STAFF

RESHAPING THE LAN MARKET

IBM
NOVELL

- IBM to resell Novell LAN operating system as "Netware from IBM"
- IBM and Novell to develop Netware for 32-bit OS/2 and RS/6000 by year's end 1992
- Eventual interoperability between OS/2 LAN Server and Netware on OS/2 and RS/6000; Netware hooks to Netview

BOSTON — Making perhaps the strangest vendor bedfellows to date, IBM and Novell, Inc. have formed a relationship that could radically alter the dynamics of the local-area network market.

IBM will immediately begin selling Netware 286 and 386 network operating systems from LAN market leader Novell as "Netware from IBM," the two companies announced last week at the Networld '91 conference here. Novell's product will be sold as an alternative to IBM's LAN operating system, OS/2 LAN Server.

The IBM endorsement of the leading LAN operating system pleased many users. "We are in total shock about this relationship, but it makes our future much brighter," said Francis Paquin, a network computing consultant at Ontario Hydro, a large Canadian utility company that runs a Novell network consisting of 8,000 nodes and 120 servers. Ontario Hydro operates a separate IBM mainframe-based Systems Network Architecture network and other hardware platforms that could be suitable for Netware, Paquin said.

Other users wondered why it took so long for IBM to make the move. "The IBM/Novell relationship is good for the industry,

Continued on page 99

Credit check goes on the air

Visa says radio link will slash response times

BY GARY H. ANTHES
CW STAFF

SAN FRANCISCO — Visa U.S.A. said last week that it will launch an aggressive campaign to implement on-line, radio-based credit card authorization, spawning cost savings for thousands of merchants and time savings for millions of shoppers.

Visa struck a deal with Vienna, Va.-based Digital Radio Networks L.P. by which DRN will provide merchants with radio transmitters and link its radio tower-based network to Visa's. Transactions from merchants will be sent by radio to one of nearly 100 DRN towers, where they will be relayed over Visanet to a Visa processing center. From there they are relayed to the bank that issued the credit card for purchase authorization.

"We basically replace the local telephone company," DRN executive Stewart Dougherty

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CHANGING ATTITUDES

Liberty Mutual rewrites IBM policy

BY CLINTON WILDER
CW STAFF

BOSTON — Four years ago, Liberty Mutual Insurance Co.'s information systems infrastructure was a sea of IBM hardware. Today, less than half of its processing power wears a Big Blue logo.

Liberty Mutual is at the forefront of a revolution that has loosened IBM's famed account control even among some of its most conservative customers: insurance companies. In Liberty Mutual's case, the multivendor push has been driven by cost savings and an effort to match appropriate technology to applications.

"Three or four years ago, we were 100% IBM for all practical purposes," said Richard Grady, vice president and general manager of IS. "Now, we probably have more non-IBM [millions of instructions per second] than IBM MIPS."

The company currently runs applications on platforms from Digital Equipment Corp., Sun Microsystems, Inc., Apple Computer, Inc. and Teradata Corp. Liberty Mutual, the nation's fifth-largest property and casualty insurer, with assets of $17 billion, is even examining the new workstation from Next, Inc.

Grady estimated that while approximately

Continued on page 100

1-year-old RS/6000 outgrows desktop tag

BY MARYFRAN JOHNSON
CW STAFF

One year ago this week, IBM took a cold plunge into the hot market for Unix-based workstations and servers with its RISC System/6000, making enough of a splash to quadruple its market share and sell 25,000 systems in only six months.

One thing that the RS/6000 has proved is that it is far from a typical workstation. The machine is more often employed in minicomputerlike jobs such as a compute-intensive server or filling in the middle tier between a mainframe and a network of personal computers.

"By and large, the RS/6000 is not sitting on people's desktops. It's too expensive for that," said Steven Eskenazi, an analyst at Alex. Brown & Sons, Inc. in New York. "There has been good acceptance on the customer side but not in large volumes of orders, wins or contracts."

One large customer that may buck that trend is Prudential-Bache Securities, Inc. in New York, which is planning a worldwide network of up to 500 RS/6000s and 10,000 terminals by the end of 1993. The company has seven RS/6000s "progressing successfully" in a pilot project to replace the 8,000 to 9,000 PCs now used in its 350

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Chips in

- Amdahl signs up for Sun Sparc chip; plans low-cost, large-scale servers for Unix networks. Page 8.

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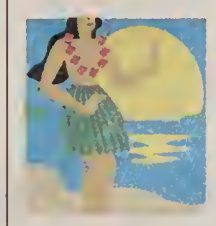

Running IS in Hawaii: 'We don't run around wearing hula skirts and living in grass shacks,' an IS exec says. Page 68.

DEC ready for showdown with its old nemesis, the retail PC channel. Page 101.

IBM backs off DB2/IMS link, says project is scrapped but remains committed to the goal. Page 4.

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8 In a new effort to take advantage of platforms other than its own, **Sun** is breaking off two subsidiaries and an R&D division this summer.

10 A host of **Japanese** firms may be dumping flat-panel displays at considerably less than fair market value, the U.S. Commerce Department says.

12 **Imaging** is becoming more of a player in the storage game, but **optical character recognition** is still a worthy contender.

16 By the end of the year, users can expect to see volume shipping of **Intel**'s 50-MHz I486 chip, with a 100-MHz version to follow.

99 Banyan's **Vines** is already making a LAN connection with AT&T's Stargroup LAN Manager.

100 **Apple**'s upgraded portable, still weighing in at a bouncing 15 pounds, is considered a bit of a drag.

101 **Lotus** rolls out a new release of Notes and announces plans to purchase CC:Mail.

Quotable

"The name of the game is getting that huge installed base, and price, at least in the short run, is no object."

RYAN ROSENBERG
HEWLETT-PACKARD

On PC software discounts. See story page 1.

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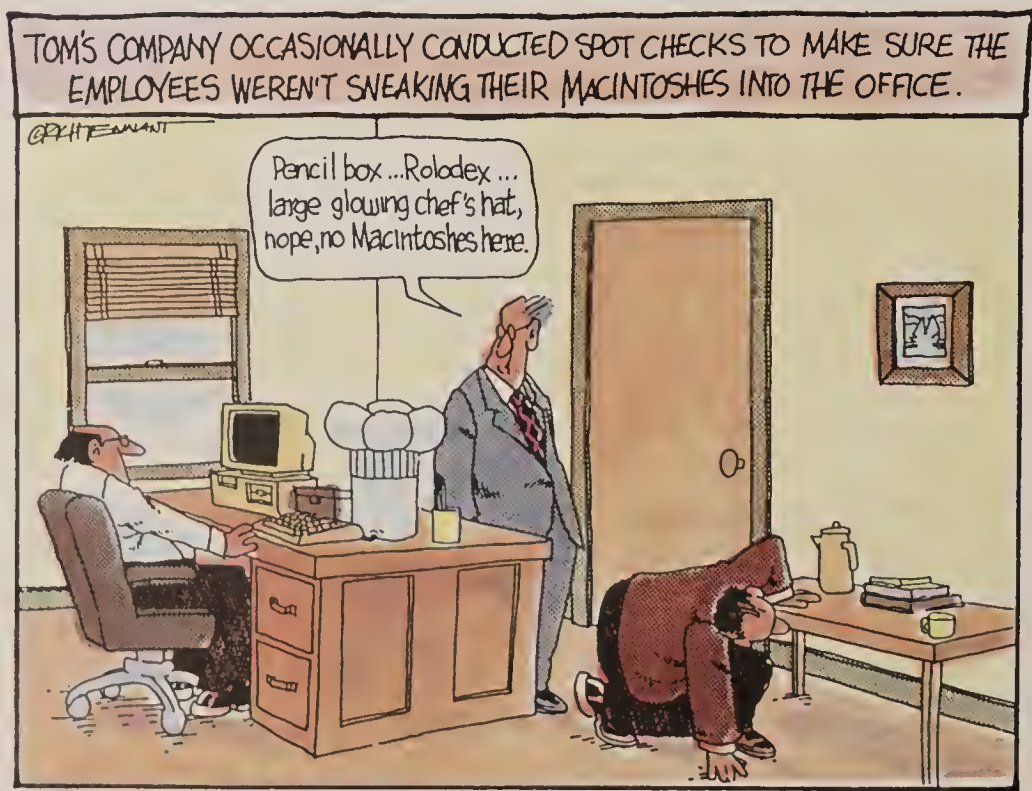

EXECUTIVE BRIEFING

■ **Job security continues to be dicey for chief information officers,** according to a Deloitte & Touche survey of 614 top information systems executives in the U.S. and Canada. One-fourth of those surveyed say their predecessors were fired, a percentage up slightly from the previous year's survey. Consultants and executive search experts say many CIOs are still unable to communicate IS benefits in business terms. **Page 6.**

■ **Visa says it will use radio waves instead of telephone lines** for on-line credit authorization. A third-party vendor will connect its radio towers to Visa's global digital network, which Visa says will cut costs and reduce the average authorization time from 25 seconds to six. Visa says it hopes the technology will enable more credit-card use in traditional all-cash businesses, such as fast-food restaurants and supermarkets. **Page 1.**

■ **The business promise of IS has been largely unfulfilled,** according to the results of a six-year research project at MIT's Sloan School. *The Corporation of the 1990s* says organizations must undergo significant changes to tap IS potential. **Page 63.**

■ **A personal computer software price war** is serving up tantalizing discounts to buyers, but vendors say, "Get 'em while they last." The deep discounting is expected to be a temporary grab for market share, particularly with new products, rather than a long-term trend toward lower software pricing structures. **Page 1.**

■ **Liberty Mutual is departing from tradition** in the IBM-dominated insurance industry with a multivendor strategy. The Boston-based insurer says it saves money and can develop more effective business solutions with a variety of platforms from DEC, Apple, Sun, Teradata and others. **Page 1.**

■ **Higher laptop prices could result** from a U.S. Commerce Department finding that Japanese vendors are dumping flat-panel displays into the U.S. market. The preliminary ruling could lead to penalties against Matsushita, Sharp, Toshiba and Hosiden Electronics. **Page 10.**

■ **Good negotiation skills are a must** for IS executives who increasingly deal with demanding users and company executives. Taking a non-adversarial stance and being flexible are key, experienced IS negotiators say. **Page 71.**

■ **A look at the highest and lowest paying** industries for IS professionals finds the IS work to be similar in both. Cultural conditions in the utilities industry at the high end of the scale and the education field at the low end are the reasons for big differences in compensation. **Page 82.**

■ **Companies can curb PC software theft** by educating employees. The Software Publishers Association estimates that for every copy of software in use, there is at least one illegal copy made. **Page 91.**

■ **On-site this week:** The Monterey Bay Aquarium, with steady growth in both marine attractions and visitors, upgrades its 6-year-old HP 3000 minicomputer to an up-to-date Series 932. **Page 27.** A mini upgrade is critical at Women and Infants' Hospital in Providence, R.I., where a Data General MV 40000 replaces two older models to keep pace with expansion at the U.S.' fifth-largest obstetrics hospital. **Page 29.** The Library of Congress will enter the touch-screen world next summer with Access, a network of 18 IBM Personal System/2 Model 70s giving library users a window on the library's huge mainframe databases. **Page 43.** Coors Brewing's area sales managers hawk the right beer now with the help of notebook and laptop computers from Compaq. **Page 46.** San Diego CATV company Cox Cable reaps cost and effectiveness benefits by automating its cost-tracking system with a Novell network and Compaq server. **Page 49.**

"It's dumb.

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IBM cancels SQL project

BY ROSEMARY HAMILTON
CW STAFF

IBM last week confirmed that it has stopped a project to develop a SQL interface to its IMS database, contradicting statements made one week earlier.

However, the company insisted that it still plans to address user requirements that would call for relational front ends to nonrelational environments.

A company spokesman said IBM canceled — and removed programmers from — the specific project that was originally set up to create the relational interface to IMS.

One week earlier, the IBM spokesman had said the SQL interface to IMS project had not been abandoned [CW, Feb. 11]. "This comes down to the meaning of the word project," the spokesman said. "If you mean a project is people writing code, then yes, it was stopped."

The spokesman would not comment on why the project was canceled, but sources last week said IBM determined it was not worth the effort. The product would have served a small slice of the IMS user base and would therefore not have provided a big enough payback for the hard work and money required to complete it.

George Schussell, president of Digital Consulting, Inc., said he was told last fall by a senior IBM executive that the project had been canceled.

"They came to the conclusion that they just couldn't do it," Schussell said in an interview last week. "The product couldn't work. You couldn't predict how long a query would take, and it could take a tremendously long time. The conclusion was: This is not the kind of product IBM would want to ship."

Visa

FROM PAGE 1

said. "This is the first competition they've seen."

According to Visa, replacing telephone with radio can reduce purchase authorization time from an average 25 seconds to six seconds.

This will help the company move into areas such a fast-food restaurants, supermarkets and cinemas, where cash has traditionally been the dominant form of payment.

"We want credit cards to be as fast as or faster than cash," a Visa spokeswoman said.

According to Dougherty, merchants could slash local telephone costs by as much as 60%, especially in metropolitan areas where local message units are expensive.

Even merchants that use toll-free numbers provided by their banks should see cost savings because the bank's cost for the toll-free service is reflected in the fee that the bank charges the merchant for the credit-card service.

> "WE WANT CREDIT cards to be as fast as or faster than cash."
>
> VISA

The Visa spokeswoman said that Visa hopes to have 150,000 merchants using the radio-based service by 1995.

There are currently 3 million merchants in the U.S. that honor Visa cards, she said.

According to Visa, the service is most cost-effective for midsize businesses, typically those with more than 300 trans./month going through dial-up terminals but with insufficient volume to justify leased lines.

Mobile PCs weathering Desert Storm

BY MITCH BETTS
CW STAFF

Some older, commercial-grade personal computers could not take the heat in August, but otherwise, the U.S. military's microcomputers are holding up well in the hot and dusty Saudi Arabian desert, according to military officials and vendors providing support for Operation Desert Storm.

In the first mass deployment of microcomputers to a war zone, the U.S. has fielded a mixture of commercial PCs and "ruggedized" PCs in one of the world's harshest environments. Ruggedized units have such features as shock absorbers, air filters to keep out sand and bigger fans for internal cooling.

Lt. Col. Larry Sims, head of technical services for the U.S. Marine Corps in Quantico, Va., said some of the unmodified Zenith Data Systems Z-248 desktop microcomputers taken to Saudi Arabia could not cope with 120-degree days. They were acquired under a 1986 contract and were never intended for outdoor use.

"During the really hot days in August, they could only be used during the cooler part of the evening. They'd just get too hot and do erratic things," Sims said.

However, some Z-248s were ruggedized before being shipped to the Persian Gulf. In other cases, some resourceful Marines rigged up extra fans to keep the PCs cooler, Sims added.

Considering the fact that most of the Z-248s are not ruggedized, "they are holding up relatively well," a spokesman for Zenith Data in Glenview, Ill., said.

Sims said the Marines' ruggedized PCs had no problem with the heat. The Marines' AN/UYK-83A micros, made by defense contractor C3, Inc. in Herndon, Va., are based on the Intel Corp. 80386 processor.

Unisys TACCS PCs, *such as those pictured above, are among the computer systems used in the Persian Gulf war*

The U.S. Army is using more than 2,000 ruggedized PCs from Unisys Corp. in Saudi Arabia, in applications ranging from command-and-control data to routine personnel information. Called Tactical Army Combat Service Support Computer Systems (TACCS), the units run on the Intel 80186 processor and are known for being tough, extra reliable and slow. Unisys is now working on an enhanced version.

A variety of late-model commercial PCs are being used by soldiers in the Persian Gulf as well, with no reports of widespread service problems. These include Compuadd Corp. desktop micros using the Intel I486 chip; 386-based PCs from Unisys; and laptop models from Compuadd, Zenith Data and Grid Systems Corp.

If the latest commercial-grade PCs continue to perform well in the war, the military may limit future purchases of the costly ruggedized units to mission-critical systems, predicted Robert Dornan, vice president of Federal Sources, Inc., a consulting firm in Vienna, Va. For administrative tasks, it may be less expensive to use commercial PCs on a disposable basis and have replacement PCs on hand, he said.

Shopping for Saudi

In mid-December, the U.S. Central Command in Riyadh, Saudi Arabia, presented Compuadd with an impressive shopping list topped by more than 1,200 Intel I486-based desktop computers and a Jan. 14 deadline.

The $21 million order sent the company into a production frenzy, requiring the staff to work through Christmas and New Year's Day, said spokesman John Pope in Austin, Texas.

A series of eight planes ferried the computer equipment to Riyadh, the last one landing Jan. 14, one day before the United Nations deadline for Iraq's withdrawal from Kuwait.

Other items on the list included the following:

- 350 Intel 80386SX-based laptop computers.
- Software packages such as Microsoft Corp.'s Windows, Lotus Development Corp.'s 1-2-3, Ashton-Tate Corp.'s Dbase IV, Wordperfect Corp.'s word processing software and Digital Communications Associates, Inc.'s Crosstalk for Windows.
- Ten local-area networks with Compuadd 333T servers.
- A slew of peripherals, including external compact disc/read-only memory drives, 1,300 Hewlett-Packard Co. Laserjet printers and 1,200 Panasonic Industrial Co. dot matrix printers.

And what about the $21 million tab? It was picked up by Japan's so-called peace fund, which provides cash to the allied war effort in lieu of direct military involvement.

MITCH BETTS

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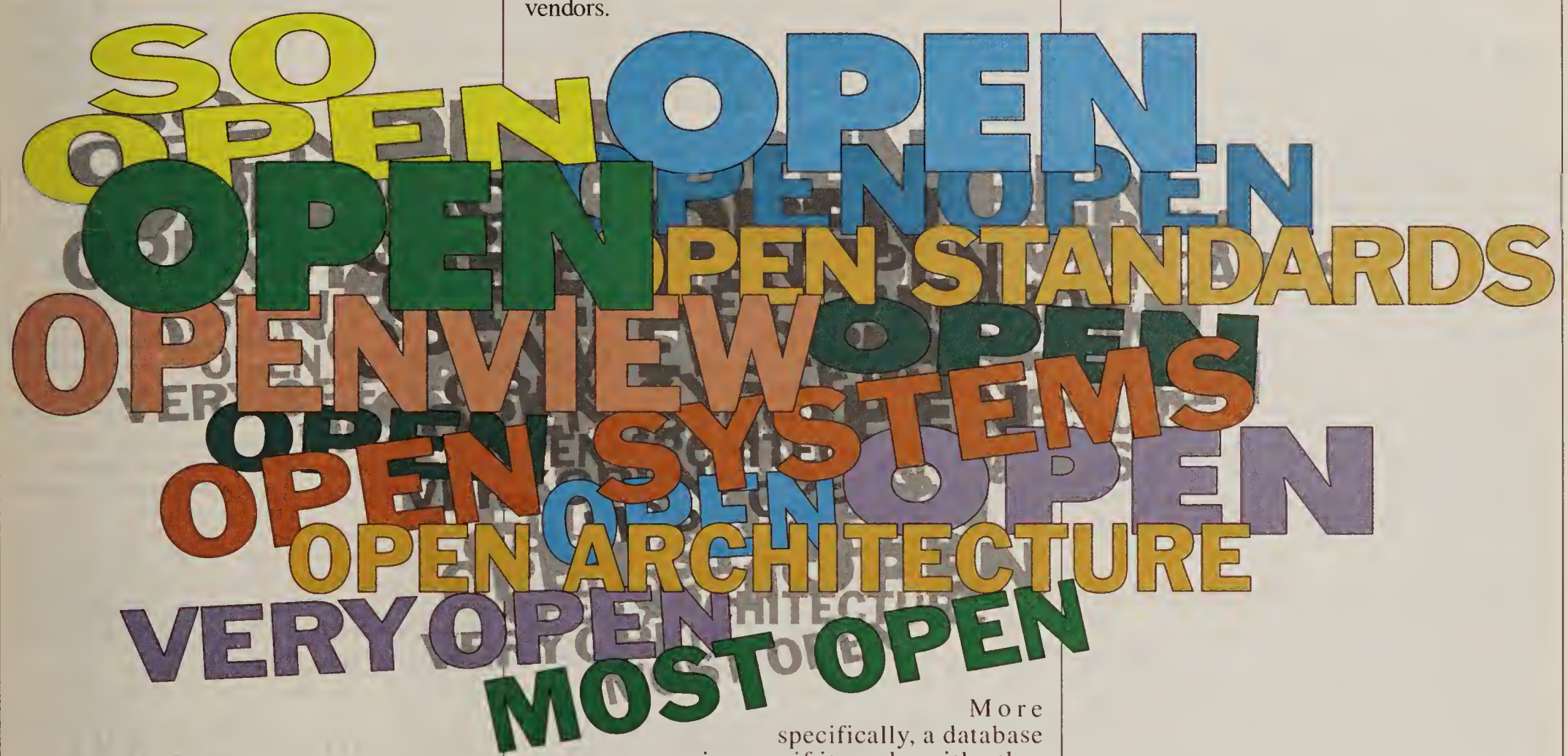
Closing Arguments

Only ORACLE supports virtually every vendor's software, hardware and network.

Today, some software companies claim that their software products are "open." They may even graft the word onto their product names. It is a confusing situation, but a clear definition of "open" is finally emerging.

Software is "open" only if it adheres to industry standards and works with products from other vendors.



More specifically, a database is open if it works with other vendors' databases. For example, ORACLE provides access to IBM's DB2, SQL/DS and DEC's RMS.

An open database should also work with other vendors' applications. ORACLE works with DEC's All-in-1, DG's CEO, IBI's Focus and SAS. And it supports PC and Mac software like Lotus 1-2-3, WordPerfect, Borland's Paradox and Apple's Hypercard. Even Dbase applications run on ORACLE.

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NEWS SHORTS

IBM shifts marketing group

IBM "closed the loop" on its Officevision shift last week by moving its marketing group out of the Application Solution Division and into the company's U.S. marketing group, a spokesman said. Last month, the company gave its Programming Systems Division, headed by Earl Wheeler, development responsibility for the troubled office software project. Previously, the Application Solution Division had responsibility for both Officevision development and marketing.

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HP to announce Unix systems

Hewlett-Packard Co. said it plans to release a new series of high-end reduced instruction set computing (RISC) multiuser Unix systems running at 50 or more million instructions per second (MIPS) and low-end RISC systems running at more than 12 MIPS by the end of next month. At the high end, the systems will be priced under $20,000, according to a spokesman. A basic low-end system will cost about $5,000.

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Belove leaves Lotus

Lotus Development Corp.'s head of corporate research and development, Edward Belove, resigned last week, saying it was time to go. Belove, 40, was involved in the Improv, Agenda and Magellan projects and hinted that the fruits of yet another effort will be introduced in April. Some analysts suggested Belove left because his role had been downsized two years ago. Belove said he wanted to work for a smaller company and had been thinking about resigning for a long time "based on the development I wanted to do and the kind of person I am."

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CD-ROM Yellow Pages debuts

Business telephone numbers from the Yellow Pages of every U.S. city and town are now available on a compact disc/read-only memory (CD-ROM) release from Cambridge, Mass.-based Dataware Technologies, Inc. Memory-resident and modem options allow speed dial users to access a database of 9.2 million telephone numbers and dial one while another application is booted and running. The $399 disc runs on CD-ROM drives attached to IBM Personal Computers, Personal System/2s and compatibles.

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3Com touts host connectivity

3Com Corp. said last week that it is adding Unix host connectivity for a passel of operating systems through two of its Transmission Control Protocol (TCP) products. TCP with Demand Protocol Architecture (DPA) and Netbios will offer host connectivity to Novell, Inc.'s Netware, Microsoft Corp.'s Windows 3.0 and LAN Manager 2.0; and IBM's OS/2 Versions 1.21 and 1.3. TCP with DPA and TCP Netbios, 3Com said, are currently available.

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CA cuts workers

Computer Associates International, Inc. last week laid off 20 people from its Microcomputer Products Division (MPD) in San Jose, Calif. The personnel, mostly in administration, represent about 9% of the division's 300-plus employees. A CA spokesman said the layoffs resulted from a reorganization that will "bring MPD more into the corporate fold. It had operated as more of a subsidiary, and there were some redundancies."

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Sprint scores NSF win

U.S. Sprint Communications Co. has won a contract to extend the National Science Foundation's (NSF) Nsfnet to overseas research and scientific networks, the NSF announced last week. The contract is a coup for Sprint, given that three years ago, IBM and MCI Communications Corp. got the job of implementing Nsfnet's high-speed domestic backbone. The initial agreement calls for Sprint to provide 128K bit/sec. links to research networks in France and Sweden, with Cisco Systems, Inc. providing multiprotocol routers and Cornell University providing the network operations center, according to Steve Goldstein, an NSF program director.

More news shorts on page 100

More CIO departures are not done by choice

BY CLINTON WILDER
CW STAFF

CHICAGO — Those who like to proclaim that CIO stands for "career is over" received some supporting evidence from results of a Deloitte & Touche survey of chief information officers that was released earlier this month.

Nearly 25% of the 614 North American CIOs surveyed in 1990 said their predecessors left their jobs because they were fired. A smaller percentage, 19.8%, said their predecessors left voluntarily. By contrast, in the 1989 survey, the percentage of CIOs who were dismissed was the same as those who left voluntarily: 21.1%.

Increasing demands to communicate the bottom-line benefits of information systems is exacerbating such occupational hazards, said W. Richard Howard, head of the IS executive practice at search firm Korn/Ferry International in Los Angeles.

The No. 1 reason for CIO firings is "they simply can't translate what they're doing into terms that the CEO can understand," Howard said. "You see a lot of CIOs doing the right thing, but the key people don't know it."

A telling factor in the Deloitte & Touche survey may be that 38% of the CIOs said they still do not participate in their company's strategic planning process. Furthermore, when asked to rank the most important factors in measuring IS service, respondents rated the company's bottom line — improved overall financial position — only seventh. The No. 1 indicator was the old standby of implementing systems on time and within budget.

"That is a very different focus from the CEO's, which I think the CIOs need to change," said Ray Bolek, director of large-scale systems consulting at Deloitte & Touche.

Turnover at the top

Almost one-third of departed CIOs were ousted or demoted, according to a survey of 614 IS executives in North America

Why did your predecessor leave this position?

Dismissed	24.8%
Demoted	7.1%
Voluntary leave	19.8%
Promoted	12.5%
Lateral move	11.0%
Retired	10.3%

Source: Deloitte & Touche
CW Chart: Paul Mock

Beware of distribution

The distribution industry was particularly treacherous for senior IS executives. A whopping 60% of CIOs who left distribution companies were fired or demoted; the next worst industry was manufacturing, with 38%.

"Profit margins are so tight in distribution that they can't afford to waste any money," Howard said. However, Bolek pointed out, a high number of mergers among distribution companies may have inflated the number.

At the other end of the spectrum, financial services, transportation and education all had CIO dismissal/demotion rates under 20%.

Employment volatility is also occurring further down in the organization: Turnover rates for systems development professionals increased in the survey for the third straight year. The systems development employee turnover rate in the past two years was 12.2%, up from 11.9% in the previous survey and 9.5% in 1988. Among industries, retail had the highest rate, 13.8%, and energy had the lowest, 8.2%.

Vaxcluster Oracle version on the way

BY JEAN S. BOZMAN
CW STAFF

REDWOOD CITY, Calif. — Oracle Systems Corp. said last week it has fixed problems that forced it to exclude Digital Equipment Corp. Vaxclusters from using a version of its database management system software 18 months ago. It expects to introduce the revised product next month.

Oracle 6.2 will replace Version 6.0, which was not withdrawn from the market but which Oracle conceded would not work with Vaxclusters. The features in Oracle 6.2, available at first for Vaxcluster users, will be termed the "parallel server option," and will be included in Version 7.0 for other systems, Oracle spokesmen said last week.

The update will have a rewritten distributed lock manager that solves resource contention problems, Oracle Chief Executive Officer Larry Ellison said last week.

Transaction processing features in Oracle 6.0 had caused excessive I/O messaging and disk resource contention on Vaxclusters, slowing performance. The product reportedly did not experience that problem running on single VAX units.

In Version 6.2, "they fixed the problem the right way," said Donald Feinberg, program director for software management strategies at Gartner Group, Inc. in Stamford, Conn. "They wrote their own distributed lock manager to do their own lock handling instead of letting the DEC Lock Manager do it."

Queries to the Oracle 6.2 database are collected in a "journal" before being transacted, lessening the number of I/O transactions to the Vaxcluster's shared disk memory, Feinberg said. Oracle 6.2 also uses row-level locking instead of page-level locking, allowing multiple users to access the same set of tables without locking one another out.

In contrast, DEC's own RDB relational database manager handles the Vaxcluster challenge by breaking the database into multiple partitions. Each partition is dedicated to a single VAX, explained Vickie Farrell, DEC's marketing manager for database systems. Updates are transferred from partition to partition using two-phase commit procedures. Oracle will not support two-phase commit procedures until Version 7.0, which is expected to be released later this year or early in 1992.

Analysts said they believe the recent improvements in DEC's newest RDB 4.0 DBMS — combined with Oracle's lack of Vaxcluster support — have hurt Oracle's VAX market share. Oracle's VAX revenue slid from $86 million in the fourth quarter of fiscal 1990 to $51 million in the first quarter of fiscal 1991.

Users said the lack of Vaxcluster support has been inconvenient, but they had learned to work around it.

"You can't have five nodes with people trying to update the database at five points," said Michael Corey, the Oracle database administrator at Children's Hospital in Boston, which has a 4G-byte Oracle DBMS on one of five VAX 6400 machines. "With the DEC Lock Manager in the middle [of the cluster], performance went down greatly."

Children's Hospital decided to stick with Oracle Version 5.0 to restrict access to the DBMS to just one machine. Pacificorp, a Portland, Ore., power utility, decided to hold off on grouping some of its 50 VAXs into Vaxclusters, awaiting resolution of the Version 6.0 resource-contention problem.

"Oracle 6.2 is a necessary part of our long-term strategy on platforms," said Wayne Horscroft, director of data management at Pacificorp.

Unisys plans hybrid A series midrange system

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Unisys Corp. is expected to announce a midrange system today that uses microprocessors from both Unisys and Intel Corp. and that is able to run Unisys' proprietary operating environment as well as Microsoft Corp.'s OS/2 or AT&T's Unix System V concurrently.

The Unisys Cooperative Computing Platform (CCP) will replace the 2-year-old Unisys Micro A, from which it is derived, and could make the A series appealing to a wider audience.

However, analysts said they were skeptical about how much the CCP will extend Unisys' reach beyond the A series installed base or cause a ground swell of software developer activity, given the relatively small Micro A user base.

"With CCP, you have the potential to marry [A series and OS/2, DOS or Unix] applications under a remote procedure call mechanism into a single application," Unisys program marketing manager Mark Feverston said.

For example, he said, the database and on-line transaction processing services could use the Unisys Single Chip A series Mainframe Processor chip, while the graphical user interface could use the Intel 80386 chip. He conceded, however, that for now, applications on the A series and Intel Corp. chips can run concurrently but are quite separate.

David Card, an analyst at International Data Corp. in Framingham, Mass., said Unisys will primarily sell its new machine to its existing base of Micro A users, who may want the option of giving users on a local-area network access to applications resident on the CCP.

Additional compatibility

In addition to OS/2 and Unix, the newest A series can include DOS personal computer services and applications when outfitted with optional Unisys Usernet software. With this configuration, the CCP can function over a Novell, Inc. LAN.

However, Unisys does not appear to be interested in making the CCP a Novell server, according to Card.

Asked if Unisys will use Novell's Portable Netware on the CCP, Feverston said, "Call me back in a few months." Similarly, he said that although Unisys is considering porting the CTOS operating system used in its CTOS networked workstations to the new A series, it was "expedient" to stay with the PC platform and get the system to market quickly.

According to Unisys, the CCP can achieve 12 trans./sec. and ranks in performance between an IBM Application System/400 Model B45 and AS/400 B50.

Existing Micro A customers cannot upgrade to the CCP.

Available immediately, CCP models will range in price from $26,750 to more than $100,000.

Compaq pumps up storage array

BY RICHARD PASTORE
CW STAFF

BOSTON — Systempro users facing potential memory constraints welcomed Compaq Computer Corp.'s announcement last week of a disk expansion unit that pushes current 1.6G-byte storage limits to nearly 20G bytes.

Compaq also announced digital audio tape (DAT) drives for its high-end computers and cut system prices by as much as 21%.

"I'm going to need the space," Systempro user Gerard Nussbaum said. With efforts under way in customized database applications and plans for electronic data interchange, "we're fast approaching the maximum," said Nussbaum, who is director of MIS at Premier Hospitals Alliance, Inc. in Westchester, Ill.

Users can attach up to two free-standing Intelligent Array Expansion Systems, each with a maximum 9.1G-byte capacity, to their Systempros. User-selectable, fault-tolerant features include drive mirroring, an on-line spare drive and controller duplexing.

"It removes the final limitation that I saw on the machine," said Mark Olsen, systems analyst at Cox Cable San Diego, Inc. "New network applications such as imaging have tremendous disk requirements," he noted.

The expansion unit costs $21,999 with two 1.3G-byte drives. Additional drives cost $2,999 each. The systems are expected to ship this quarter.

Up to two of Compaq's new 1.3G/2G-byte DAT drives can be installed in the Systempro and in several other high-end desktop machines. The drives accept standard removable tape cartridges. Shipped with one digital tape, the drive lists for $5,499 and will reportedly be released this month.

To make the systems more competitive, Compaq cut prices by as much as 10% on all Systempro models and boosted standard memory to 8M bytes on Intel Corp. 80386-based Systempros. Deskpro 486/33L and 386/33L systems saw prices drop from 13% to 21%.

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RS/6000

FROM PAGE 1

branch offices, according to Chief Information Officer William H. Anderson.

A more typical RS/6000 customer is Gulf States Utilities Co. in Beaumont, Texas, where four RS/6000 Model 320s are taking over a nuclear engineering application that ran on the utility's IBM 3090 mainframe. "Initially, these machines will be used primarily as stand-alone workstations networked over a Token-Ring to the mainframe," said Quentin Whitman, supervisor of application systems.

The nine RS/6000 Powerstations and Powerservers introduced one year ago have been joined by three more, and IBM will introduce low-end workstations in March, company officials confirmed last week. IBM also said it will release a diskless workstation later this year priced well below $10,000.

At an average sale price of $30,000, the RS/6000 accounted for about $750 million of the $1 billion IBM recently reported earning in workstation sales in 1990, according to Alex. Brown. The remaining $250 million were sales of the IBM RT, a workstation widely considered to be an overpriced, underpowered failure.

Sources of money

Despite its popularity, the RS/6000's hefty price tags are forcing some users to cut costs in other ways.

At Deere Technology Services, the information systems division at Deere & Co. in Moline, Ill., there are 15 RS/6000s in use both as servers and desktop machines. The high cost of the hardware, however, led Deere to buy third-party peripherals, memory and disk drives.

The company is pleased with both the performance of the RS/6000s and the ease of integrating the machines into a network of Sun Microsystems, Inc. workstations, said Rosie Barton, a systems analyst at Deere. While the AIX operating system — IBM's version of AT&T's Unix System V — has not proved as "error-free" as Sun's more mature Sun OS Unix, Barton said, AIX has features making it easier to administer.

At Central Hudson Gas & Electric, Inc. in Poughkeepsie, N.Y., a third-party application for electrical load flow analysis prompted the purchase of a single RS/6000 for the engineering department. "What surprised me was that so much software has been written for it, and it's only a year old," said Robert Berger, IS director at the utility company.

Exceeding expectations

Indeed, the RS/6000 overshot IBM's projections for 1,500 applications within the year, instead attracting 2,500 of what IBM calls "best of breed" applications and ports of 7,000 other packages.

"There is no doubt anymore that the RS/6000 has become one of the most important strategic products for IBM in the past year," said Bob Djurdjevic, president of Annex Research in Phoenix.

Not everyone is ready to concede the workstation race to IBM, however.

IBM is "not yet an effective competitor in the workstation business" because its sales force lacks broad experience with Unix, said Mark Stahlman, an analyst at Alex. Brown.

In the running

IBM's RS/6000s are topped only by Motorola's reduced instruction set computing-based systems in AIM price/performance rankings

Certified AIM Performance Report II results (by price categories)

System	Price (U.S.)	AIM performance rating (AIMs)*	Price/performance (price per AIM)
Best price/performers under $50,000 (15 systems total)			
Motorola SYS8440	$29,995	20.5	$1,463
IBM RS/6000 Powerserver 320	$27,205	16.4	$1,659
Decsystem 5100	$39,940	17.5	$2,282
Sun Sparcstation 1	$13,745	5.9	$2,330
AT&T Starserver S	$49,835	18.7	$2,665
Unisys U6000 Model 55	$28,950	8.3	$3,488
Best $50,000-$100,000 price/performers (10 systems total)			
Motorola SYS8640	$77,565	39.5	$1,964
IBM RS/6000 Powerserver 520	$56,890	16.9	$3,366
IBM RS/6000 Powerserver 530	$76,195	21.3	$3,577
IBM RS/6000 Powerserver 540	$93,695	24.9	$3,763

*One AIM approximates the multitasking performance of a DEC VAX 11/780

Source: AIM Technology, Inc. CW Chart: Doreen St. John

RISC alliance draws mixed reviews

BY J. A. SAVAGE and RICHARD PASTORE
CW STAFF

A reputed high-powered alliance led by Compaq Computer Corp. could more quickly shape RISC-based workstations into a general-purpose computing platform, analysts said last week. But Compaq said it has yet to select a reduced instruction set computing (RISC) architecture, and other firms in the alliance remained closed-mouthed about its existence.

Observers said Compaq, which has been studying RISC for some time, will announce adoption of Mips Computer Systems, Inc.'s RISC platform soon. Furthermore, Compaq and Mips will be joined by Microsoft Corp., Digital Equipment Corp. and The Santa Cruz Operation (SCO) in a coalition intent on establishing a new commercial workstation standard, published reports said last week.

Such a coalition would have enough muscle to create another de facto standard in the Unix market — alongside the Open Software Foundation (OSF) and Unix International, according to Tom Kucharvy, an analyst at Summit Strategies, Inc. in Boston.

However, a Compaq spokeswoman said last week that a decision on RISC processor adoption had not yet been made, and none of the companies named as allies would confirm that any such pact existed.

Developing a RISC-based product line — either workstations or servers — capable of running today's suite of business applications would be a good move for Compaq, analysts agreed.

Users would benefit by gaining access to a business-oriented, multitasking system with potentially faster throughput than Intel Corp.-based platforms.

RISC players Sun Microsystems, Inc., Motorola, Inc. and Silicon Graphics, Inc. confirmed talks with Compaq but would not elaborate.

However, Mips is the most likely platform for Compaq to adopt, analysts agreed. If it chose Sun's Scalable Processor Architecture, Compaq would be forced to compete with the market leader using the same technology for the same market, according to Richard Fichera, a Groton, Mass.-based workstation consultant.

Sun currently leads the RISC market with 38.2% of worldwide unit shipments. Sun Chief Executive Officer Scott McNealy lashed out at the potential coalition last week.

"It's just another OSF — Oppose Sun Forever — maneuver," McNealy said, referring to the OSF's efforts to establish an alternative to Sun's Unix implementation.

Some observers claimed a coalition of Compaq, Mips, Microsoft, DEC and SCO would have considerable clout and impact on the RISC market.

Sun subsidiaries to address open systems

BY J. A. SAVAGE
CW STAFF

Sun Microsystems, Inc. reorganized last week, forming two wholly owned subsidiaries to take advantage of business in open systems and make an attempt to streamline the nearly $3 billion company.

As of July 1991, Sunsoft, Inc. will market Sun's systems software, such as its current Unix graphical user interface and future multimedia products, according to a spokesman.

Its first market will be for Sun's Scalable Processor Architecture, its clones and compatibles, but future marketing will be aimed at other Unix-based platforms.

Ed Zander, former vice president of marketing, is slated to be named president of Sunsoft.

At the same time, Suntech Enterprises, Inc. will be formed. It will market products that sit on top of the operating system, such as personal computer network file systems and connectivity software, the spokesman said.

Suntech's president will be Eric Schmidt, former vice president of general systems.

A new division called Sun Laboratories is also being formed for research and development.

"The reorganization is to exploit new opportunities in the marketplace on platforms other than Sun's," the spokesman said.

Amdahl selects Sparc for Unix server/hosts

BY JEAN S. BOZMAN
CW STAFF

SUNNYVALE, Calif.— Amdahl Corp. last week joined the ranks of systems vendors that are standardizing Unix development on Sun Microsystems, Inc.'s Scalable Processor Architecture (Sparc) chip.

The $2 billion mainframe maker said it will license the Sparc technology to develop large-scale systems that it plans to sell at lower prices than the IBM-compatible mainframes it manufactures.

Amdahl gave no formal timetable for the delivery of Sparc-based products, but company sources said it may be only one year away.

"We think there's a great need for large, centralized processing within the open systems [and Unix] marketplace," said Dave Anderson, vice president of advanced systems at Amdahl.

Amdahl's UTS 2.1 version of Unix, which complies with AT&T's Unix System V, has Amdahl extensions that support data integrity, enhanced network management and connectivity with IBM-compatible mainframes.

One possible scenario, analysts said, would have Amdahl Sparc machines serving as corporate databases. The Amdahl file servers would also support distributed processing on Unix-based local-area networks, shuttling data between Unix workstations and IBM-compatible mainframes.

An earlier Amdahl attempt at a Unix mainframe, the Amdahl 7300, failed to catch on in the marketplace, said Rick Martin, an analyst at Prudential-Bache Securities, Inc. in New York.

"Their attempt to sell a Fujitsu Ltd.-based machine as a Unix server was a total flop," Martin said. "The machine they were offering was priced at about $1 million, and that's fairly rich for that kind of server." Amdahl said the 7300 ranges in price from $730,000 to $2 million.

Martin said the coming Sparc machine may be less powerful than the 7300 but offer far better price/performance.

Fujitsu, a leading manufacturer of Sparc chips, has also been building workstations on the Sparc standard, Martin said.

Anderson said the Sparc decision was made independently. "Fujitsu has been on Sparc for years," Anderson said. "The fact that we are partners with Fujitsu and that they are also on Sparc is good and a plus, but that's not the reason we made this decision."

In another Sparc-related development, Intergraph Corp. said last week it would buy up to $150 million worth of Sun's hardware over three years, despite its rival relationship in the reduced instruction set computing market.

The deal is a result of Intergraph's purchase of Dazix, an electronic design automation business that runs some of its software on the Sun platform.

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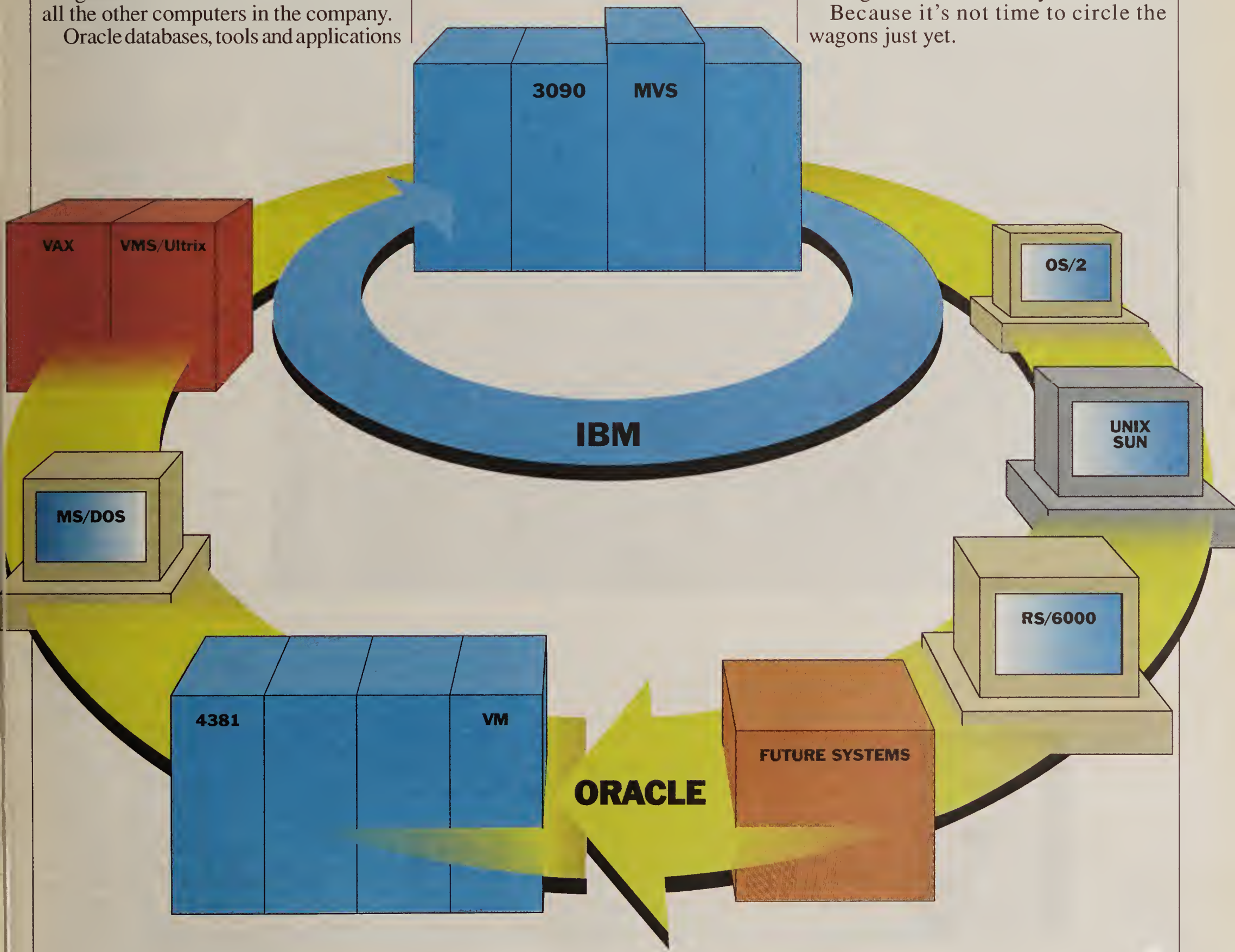

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U.S.: Japanese displays underpriced

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — In a ruling that could foreshadow increased costs for laptop computers, the U.S. Department of Commerce announced a preliminary finding last week that Japanese firms are selling flat-panel displays in the U.S. at less than their fair market value.

If confirmed by further study, the finding could lead to the imposition of antidumping penalties against Hosiden Electronics Corp., Matsushita Electric Industrial Co., Sharp Corp., Toshiba Corp. and other Japanese makers of large-area, matrix-addressable displays and subassemblies.

The displays are based on liquid-crystal, plasma and electroluminescence technologies and are used in laptop and notebook computers and other products. They could also have possible future applications in high-definition television.

The Commerce Department found that the companies were dumping the displays in the U.S. at prices as much as 4.6% below fair market value — far less than the discounts that U.S. makers of the devices cited in the complaint that sparked the investigation.

James Burger, an attorney for Apple Computer, Inc., said he was encouraged by the numbers but said flat-panel display manufacturers are certain to vigorously contest them.

Robin Gilbert, a Washington, D.C.-based attorney representing the Advanced Display Manufacturers of America, the group of companies that brought the complaint, said she expects the dumping margins to go much higher when the Commerce Department finishes its investigation.

The preliminary numbers are based mostly on a comparison of prices in the U.S. and Japan, while the final numbers will factor in a comparison of U.S. prices and manufacturers' costs. Gilbert said that could boost the dumping margins from 70% to 300%.

Apple and other computer manufacturers are concerned that antidumping actions will drive up the costs of components they have to buy overseas.

> "THERE ARE INDICATIONS that Apple didn't pick our companies because of price."
>
> ROBIN GILBERT
> ATTORNEY FOR ADVANCED DISPLAY MANUFACTURERS OF AMERICA

Burger said Apple buys its LCDs from Hosiden because no domestic supply exists. For that reason, Apple contends that the antidumping law is misapplied in this case.

However, Gilbert said, "they've been saying that all along, but we do have member companies that could provide the product [to Apple]. There are indications that Apple didn't pick our companies because of price."

The Commerce Department said it will make a final ruling on the dumping issue by April 29. If the ruling is affirmative, the U.S. International Trade Commission will have to determine within 45 days if the dumping is injuring or threatening to injure U.S. industry — something it found in its own preliminary investigation.

If dumping and injury are found to have occurred, the offending firms will have to pay a penalty thereafter on every item exported to the U.S. The fee will be proportional to the amount by which their U.S. prices were found to fall below fair value.

The penalties will be assessed for at least one year, and then they may be removed, changed or extended.

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Imaging forms data niche

BY CAROL HILDEBRAND
CW STAFF

Imaging is hitting the agenda in more information systems sites, but its potential may be limited until character recognition technologies develop further.

According to a member survey by the Data Entry Management Association in Norwalk, Conn., 33% of respondents saw imaging as the next technology to affect their jobs.

However, one man's imaging may be another man's optical character recognition (OCR), according to Paul Sefjack, director of data entry systems development at Automated Data Processing in Roseland, N.J. "I think a lot of people get those two technologies confused," he said. "Imaging is slow in coming into its own. I can see scanning playing a bigger role in the whole process."

Mary Rhodes, senior analyst at New Science Associates, Inc. in Southport, Conn., predicted that imaging will make more of a splash when used with OCR. "I think a combination of imaging and OCR will make a difference, but there's still a lot of conversion costs that are prohibiting companies from wholeheartedly embracing both technologies," she said.

Sefjack said that in a data entry environment such as his, there is a considerable amount of numerically variable data that must be keyed in by hand. "Quite frankly, I just don't see how [imaging] fits in," he said.

On the other hand, Sefjack said, he was impressed with the accuracy of scanning equipment he had tested and could see mixing that with personal computers in his shops. "Now that pricing is coming down, it's going to be a more attractive alternative," he said.

When imaging does become more prevalent, Rhodes said, she sees it as filling a niche. "It certainly is not going to replace data entry completely," she said. "It's going to complement it and be used for specific kinds of applications. A lot of companies want to maintain their information in electronic ASCII rather than image form."

Small circle
Imaging has been drawing a lot of attention, but the number of installed systems is very limited

Vendor	Number of installations worldwide
Filenet	400
Wang	350-360
IBM	210-215

Source: IDC/Avanti CW Chart: Paul Mock

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Wang optical drive debuts

BY SALLY CUSACK
CW STAFF

LOWELL, Mass. — Wang Laboratories, Inc. moved to fortify its presence in the imaging marketplace last week with the announcement of an optical disc drive system.

The drive was designed to allow Wang optical jukeboxes to provide access to 838G bytes of storage at a cost of $236 per gigabyte, the vendor said. It works in conjunction with the Wang Integrated Imaging Systems and Open/Image-CICS product lines and can store 3.2G bytes of information on each side of a double-sided cartridge.

Ajit Kapoor, vice president and director of imaging strategies at Meta Group, Inc., a market research firm in Westport, Conn., noted that the drives were competitively priced and that the product's 90-msec access time was a good average. Wang's primary competitors in the optical storage marketplace are Filenet Corp. and IBM.

Wang said it is obtaining its drives under an OEM agreement with ATG and Gigadisc and that the technology supports 12-in. write-once, read-many (WORM) optical discs.

The stand-alone optical disc drive is priced at $35,000, and as many as five drives can be connected to a single image server.

Also offering jukeboxes

Wang also said it is offering two optical jukeboxes through an OEM agreement with Cygnet Systems, Inc.

Designated the Model 2278V-JA series, one configuration offers one drive and is capable of storing 61 12-in. discs. It is priced at $140,000.

The system is also available with two drives that are capable of storing 131 discs at a price of $198,000. Both jukeboxes can accommodate as many as five drives.

Observing that the optical storage industry is currently in a very dynamic stage of change, Kapoor offered a word of caution regarding the 12-in. form factor: The push is now toward 5¼-in. drives. He also predicted WORMs will soon be a phenomena of the past and will be used primarily in seldom accessed, archival environments.

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*Gartner Group's *Software Management Strategies,* P-480-866, "LEGENT's ASO Products Take the Lead," 8/29/90.

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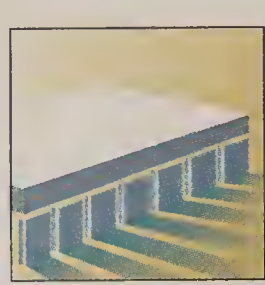
Intel details 486 plans

BY MAURA J. HARRINGTON
CW STAFF

SAN FRANCISCO — Intel Corp. made official last week what industry observers had expected for one month by acknowledging that it has developed a prototype of a 100-MHz I486 microprocessor and by promising that a 50-MHz 486 will enter volume production by year's end.

Although no schedule was revealed for commercial release of the 100-MHz version, computers incorporating the 50-MHz chip are likely to be available shortly after it goes into production, said Paul Rubin, director of product marketing at Austin, Texas-based Dell Computer Corp.

"I think it's very likely that there will be 50-MHz 486-based PCs on the market almost immediately after Intel ships its first chip," Rubin said.



Joe Schutz, a developer at Intel's Portland, Oregon-based Technology Development Group, declined to say when the 100-MHz chip will enter production.

Analyst Michael Slater, president of Micro Design Resources, Inc., a Sebastopol, Calif.-based market research firm, said he would be "surprised" to see any 100-MHz-based computers on the market before 1993. "I think one of the major points that Intel was making in demonstrating its 100-MHz chip capability is that its [complex instruction set computing-based] products are no longer clock-speed limited, and they can compete with the reduced instruction set computing-based architecture."

Intel made its announcement at the International Solid-State Circuits Conference here. Other companies at the forum presented theoretical explanations of their latest developments, which could help computer manufacturers make more powerful computers. The following announcements were made:

- IBM said it has an experimental 512K-bit static random-access memory chip that it claimed can send or receive up to 8G bits of information per second.

IBM said the chip's speed is attributed to its patented "pipelining" process, and it has potential for use in IBM supercomputers and workstations.

- Santa Clara, Calif.-based National Semiconductor Corp. introduced an embedded control microprocessor that could boost the output speed of high-end imaging products such as color printers, copy machines and others. The chip has a capacity of up to 100 million instructions per second when running at a 50-MHz clock rate.

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Byte Magazine
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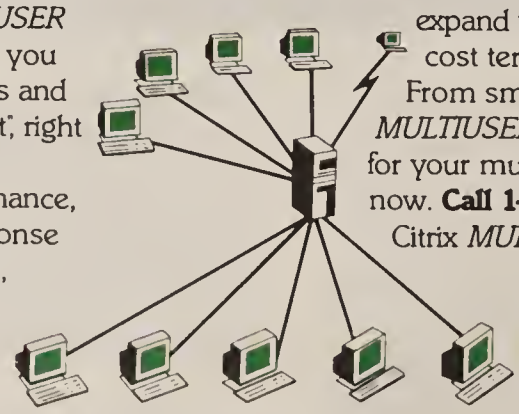

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Borland shipping C++ developer

BY JAMES DALY
CW STAFF

SCOTTS VALLEY, Calif. — Borland International, Inc. went on the offensive in the increasingly competitive Windows application development tools market last week with the introduction of Borland C++, a C and C++ programming environment for building both Windows and DOS applications.

The company also formally introduced Objectvision for Windows, an application builder that uses visual programming techniques to help users create applications without the hassle of learning a programming langauge [CW, Feb. 11].

Borland's C++ will butt heads with Microsoft Corp., which recently unveiled an interim Windows development kit when it announced plans to bundle its C Version 6.0 with the Windows Software Development Kit.

The new offering essentially rolls together two compilers: an ANSI C compiler and a C++ compiler. Major features include Turbo Drive, a series of debuggers and a Windows-based tool kit for creating icons, menus and dialogs.

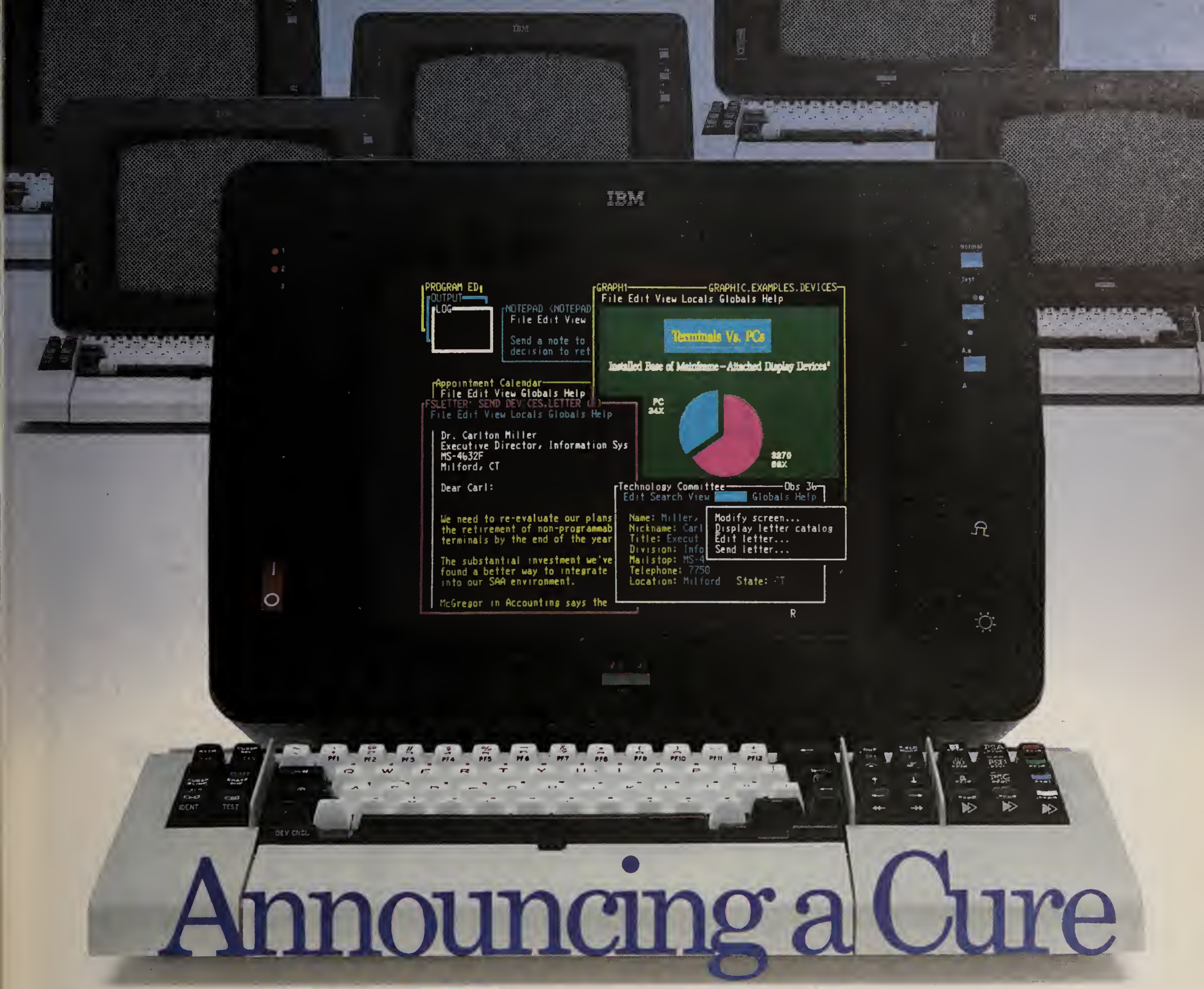
Support for extensions

In continuing its Windows languages thrust, Borland is also readying a Turbo Pascal for Windows that will support Windows extensions and offer a complete development environment, officials said.

Borland C++ replaces Turbo C++ Professional as Borland's high-end programming environment offering, said Gene Wang, vice president and general manager at the languages business unit.

Borland C++ is available now for the IBM family of computers and compatible systems with 640K bytes of random-access memory, a hard disk and DOS Version 3.0 or higher. The package has a suggested retail price of $495. Registered Turbo C and Turbo C++ users may upgrade to Borland C++ for $149.95. Registered owners of Turbo C Professional or Turbo C++ Professional may upgrade for $99.95.

The Objectvision graphical package employs an on-screen form design as a tool to create Windows applications. Although Objectvision carries a suggested retail price of $495, Borland will offer the package at an introductory price of $99.95 through May 31.



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dFacts Are In.

DATABASE COMPARISON TABLE	dBASE IV version 1.1	Paradox version 3.5	FoxPro version 1.02
EASE OF USE			
Control Center organizes data, queries, forms, reports, labels, applications on one screen	Yes	No	No
Create applications *without programming*	Yes	Yes	No
Modern pulldown menus for all Design Tools	Yes	No	Limited
Query by Example (QBE) for easy access to information	Yes	Yes	No
Context specific help by menu item	Yes	No	No
PRODUCTIVITY			
Quick Layout for automatic forms, reports and labels	Yes	No	Yes
Application Generator for quick application development	Yes	Yes	No
Automatic code generation for all Design Tools	Yes	No	No
Automatic maintenance of multiple indexes for ordering data	Yes	No	No
Memo fields for notes, letters, descriptions	Yes	No	Yes
POWER & FLEXIBILITY			
Bold, underline, italic, subscript, superscript text for high impact reports and labels	Yes	No	No
User Defined Functions for extending programming language	Yes	No	Yes
Data input validity checking in forms	Yes	Yes	Yes
Multi-user transaction processing ensures data integrity	Yes	No	No
Number of file formats imported/exported	7	6	3
INDUSTRY STANDARDS			
#1 Selling, #1 Rated multiuser database; over 3 million users (1)(2)	Yes	No	No
Compatible with dBASE III PLUS data and applications	Yes	No	Yes
Compatible versions for DOS, VAX VMS, Macintosh, SunOS and other UNIX platforms (3)	Yes	No	Limited
Structured Query Language (SQL) integrated with programming language	Yes	No	No

(1) dBASE III PLUS and dBASE IV comprise approximately 55% of PC database systems sold (3 times nearest competitor) according to the most recent report by the market research firm Audits & Surveys (Oct. 1990) (2) Software Digest rated dBASE IV #1 among multiuser databases, October 1990 (3) Versions of dBASE IV are shipping for DOS, VAX, and SunOS. Macintosh and other UNIX Platforms are announced.

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Software Digest rates dBASE IV version 1.1 the #1 Multiuser Database (Vol. 7, No. 13, Oct. '90).

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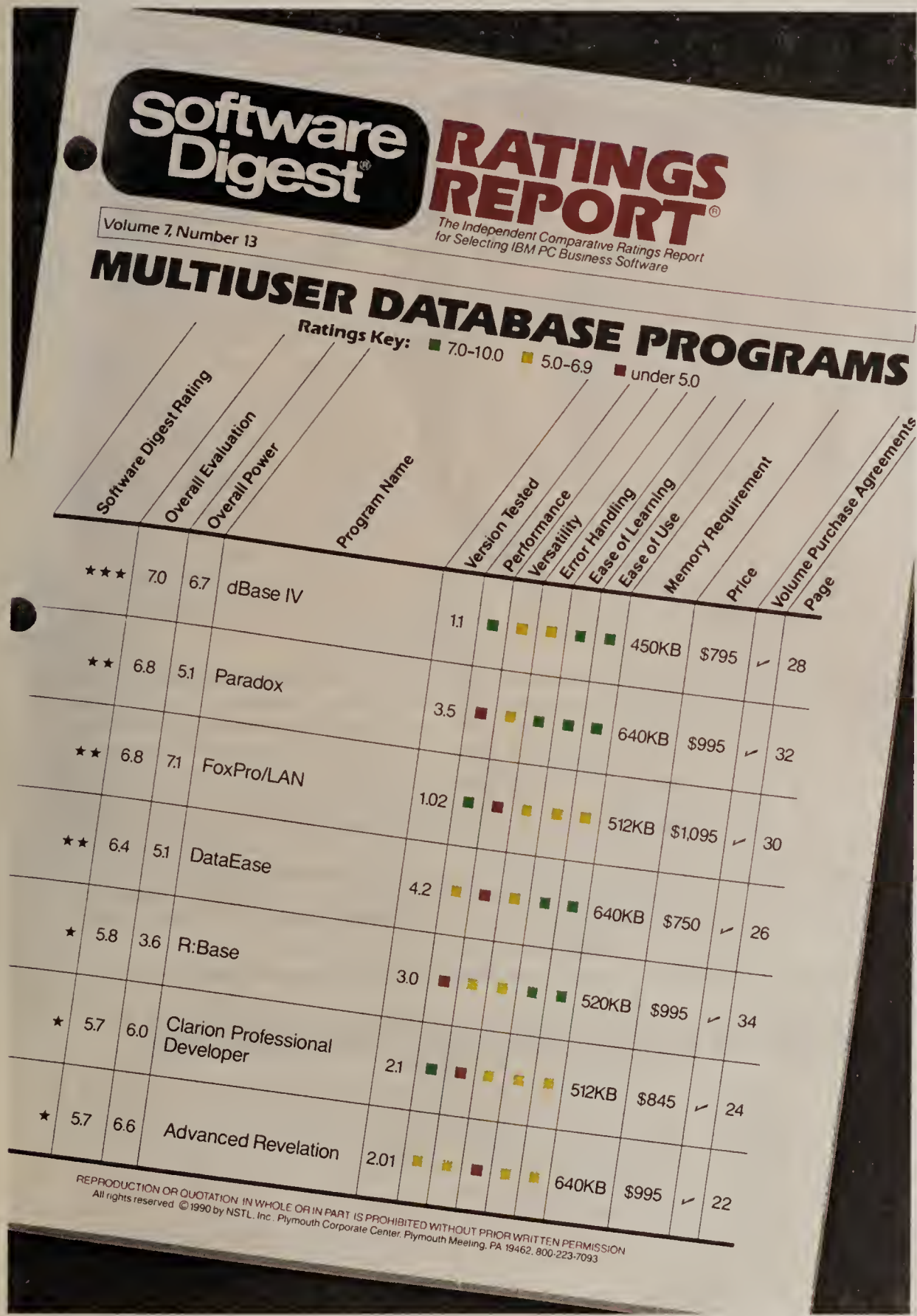
dTruth Comes Out.



Software Digest RATINGS REPORT®

The Independent Comparative Ratings Report for Selecting IBM PC Business Software

Volume 7, Number 13

MULTIUSER DATABASE PROGRAMS

Ratings Key: ■ 7.0–10.0 ■ 5.0–6.9 ■ under 5.0

Software Digest Rating	Overall Evaluation	Overall Power	Program Name	Version Tested	Performance	Versatility	Error Handling	Ease of Learning	Ease of Use	Memory Requirement	Price	Volume Purchase Agreements	Page
★★★	7.0	6.7	dBase IV	1.1	■	■	■	■	■	450KB	$795	✓	28
★★	6.8	5.1	Paradox	3.5	■	■	■	■	■	640KB	$995	✓	32
★★	6.8	7.1	FoxPro/LAN	1.02	■	■	■	■	■	512KB	$1,095	✓	30
★★	6.4	5.1	DataEase	4.2	■	■	■	■	■	640KB	$750	✓	26
★	5.8	3.6	R:Base	3.0	■	■	■	■	■	520KB	$995	✓	34
★	5.7	6.0	Clarion Professional Developer	2.1	■	■	■	■	■	512KB	$845	✓	24
★	5.7	6.6	Advanced Revelation	2.01	■	■	■	■	■	640KB	$995	✓	22

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Perhaps the most independent publication in the industry, *Software Digest* accepts no advertising whatsoever. Corporations pay hundreds of dollars a year to receive their monthly reviews—which are considered highly unbiased and objective. Their exhaustive, 75-page report concludes:

"Among the top ranking programs, dBASE IV (version 1.1) is the most well-rounded, with solid performance, versatility, and usability." Commenting on speed, *Software Digest* points out that "dBASE IV produces all three test reports as fast as or faster than FoxPro/LAN." As for Ease of Use and Ease of Learning, dBASE IV scored in the Excellent Range as many times as any other multiuser database product tested.

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ADVANCED TECHNOLOGY

TECH TALK

Multilingual multimedia

■ IBM will donate $2 million to fund the creation of a Foreign Language Multimedia Consortium that will enable language teachers to create multimedia lessons. The consortium comprises seven U.S. and Canadian colleges and will focus on the rapid development of multimedia programs to help teach French, Spanish and German. The programs will include the traditional skills of listening, reading, speaking and writing the language as well as cross-cultural understanding, IBM said. The Institute of Academic Technology at the University of North Carolina at Chapel Hill will work with the consortium in the study of teaching techniques based on multimedia technology.

More machine talk

■ ATR International in Kyoto, Japan, plans to develop an automatic voice translating system, the company said. The system will be used to translate between Japanese and English. ATR said it intends to license the technology to other firms for use in such products as telephones and televisions. More than 100 companies as well as the governments of Osaka, Japan, and Kyoto are funding the project. Technical assistance will also be supplied by SRI International, Stanford University, Carnegie Mellon University and Manchester University in Manchester, England.

Really useful media

■ British composer Andrew Lloyd Weber recently acquired a controlling interest in Interactive Instructional Systems, Inc., a Pittsburgh firm specializing in multimedia productions. Weber's company, The Really Useful Group, is apparently interested in Interactive's large multimedia library. A spokesman for The Really Useful Group said Weber's company forecasts a growing demand for training materials based on multimedia technology.

The many tongues of computers

Electronic translation helps firms prepare to enter foreign markets for the first time

BY JIM NASH
CW STAFF

Why would anyone entrust a computer with the task of translating one language — with all its slippery connotations and cultural subtleties — into another?

Proponents claim computers are well-suited to the task of translating the dry, repetitive language often found in product documentation. They said machine translation can cost-effectively help companies that are preparing to enter foreign markets for the first time. However, opponents of computer translation scoff at the idea that computers can translate anything but simple commands reliably.

Their criticism is not new. A 1966 report by the National Academy of Sciences, for example, sneered at the technology for blundering translations such as this: "The spirit is willing, but the flesh is weak," became "The vodka is strong, but the meat is rotten," when translated into Russian. However, the technology has become more sophisticated and accurate thanks to artificial intelligence and other advances.

Logos Corp. in Dedham, Mass., one of the technology's founding fathers, markets services and software based on simulated neural networks capable of categorizing words into 1,000 linguistic pigeonholes beyond the simple classifications of subject, verb and object. For instance, it classifies nouns as proper, human-type and abstract.

The networks impose thousands of rules rather than inflexible algorithms on each full sentence. Logos' translation software can correctly distinguish between "three ways of revolving credit," and "three types of revolving credit," according to Bud Scott, chief scientist and principal at Logos.

Most of the major machine translation applications available use similar approaches, according to Vic Wheatman, an analyst at Gartner Group, Inc. in Santa Clara, Calif.

Several governments are eyeing computer translation systems, said Marjorie Leon, chief of the automated translation program at the Pan American Health Organization. Leon helped develop the organization's Spanish-to-English and English-to-Spanish software. Professional translators can double their work flow — thereby reducing translation costs by 30% — by post-editing documents that have been passed through machine translation, Leon said.

Russell O. Jones

Alan Portella, vice president of marketing for Systran Translation Systems, Inc. in San Diego, said the company's bookings indicated a grudging acceptance of machine translation. Until 1986, Systran's biggest customers were the U.S. government and the European Commission, both seeking to translate technical manuals into English. Today, business is more evenly split between government and commerce, Portella said.

Xerox Corp. in Webster, N.Y., began using a dial-up machine translation service by Systran 11 years ago to hasten the translation of documentation of products destined for international markets, according to Maria Russo, manager of translation services in Xerox's development and manufacturing department.

Autodesk, Inc., a software manufacturer in Sausalito, Calif., is testing a Systran dial-up system. "We use machine translation some now but not as much as we intend to in the future," said Mitch Aoki, Autodesk's system administrator.

Systran MT Systems, as the program is called, is menu-driven. Aoki explained that he chooses "translate" and then keys in his password. The program automatically dials up Systran's mainframe.

When the document is processed, in about one to three minutes per page, it is passed back. "French and German are faster to process because [code for them] is so well-developed," Aoki said. "The shorter the sentences, the faster the translation."

User acceptance continues to be slow despite renewed interest in the technology. Wheatman estimated that out of the $12 billion spent worldwide on all forms of translation, only $10 million will be spent this year in the U.S. on automated translation. He said he expects that to double by mid-decade. Wheatman blamed the bad reputation that the technology earned in the 1960s for much of U.S. businesses' reluctance to use it.

Microchip permits voice storage in analog

BY MAURA J. HARRINGTON
CW STAFF

Information Storage Devices, Inc., a San Jose, Calif.-based start-up company, recently introduced a new microchip technology that could dramatically lower the cost of voice storage technology used in computers and other consumer goods.

The new chip is an analog recording device made from an electrical erasable read-only memory chip capable of storing up to 20 seconds of voice, according to Richard Simco, president of Information Storage Devices and the chip's inventor.

One benefit of storing voice in analog rather than digital form is that it eliminates the need to convert signals from analog to digital, which requires relatively expensive compression and analog-to-digital conversion chips, Simco said. The analog-based chip is nonvolatile and has a shelf life of 10 years, he added.

Although digital voice technology is the standard in the electronics industry, it is too costly for some applications, according to one analyst.

Voice technology in consumer products such as car radios, microwave ovens and personal computers requires an analog-to-digital converter, a memory compression chip and several megabytes of memory, according to analyst Will Strauss, president of Forward Concepts, a market research firm in Tempe, Ariz.

"This chip can be used for a number of different types of products. It is very small — eight times more dense than digital memory — and it incorporates digital addresses," Simco added.

Although a 20-second maximum storage capacity for a "tape recorder on a chip" does not appear to be very great, "there are still plenty of uses for a chip with a 16- or 20-second capacity," Simco said.

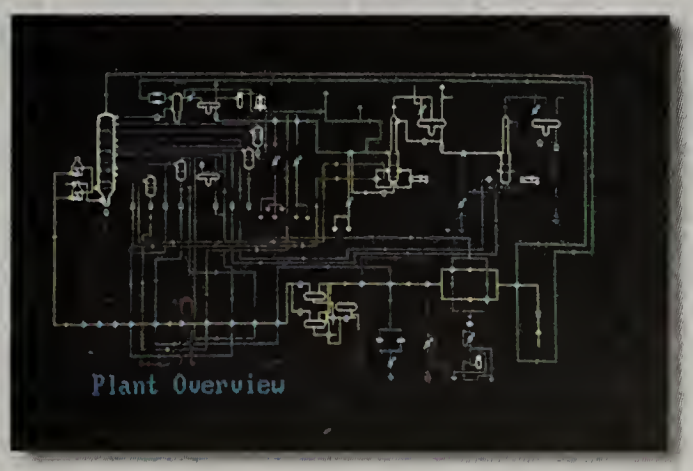
Multiple chips can be "cascaded" or piggybacked to increase voice storage length, Simco added.

STORYBOARDS

COLOR TRANSPARENCIES

COMPUTER GRAPHICS

FLAT OBJECTS



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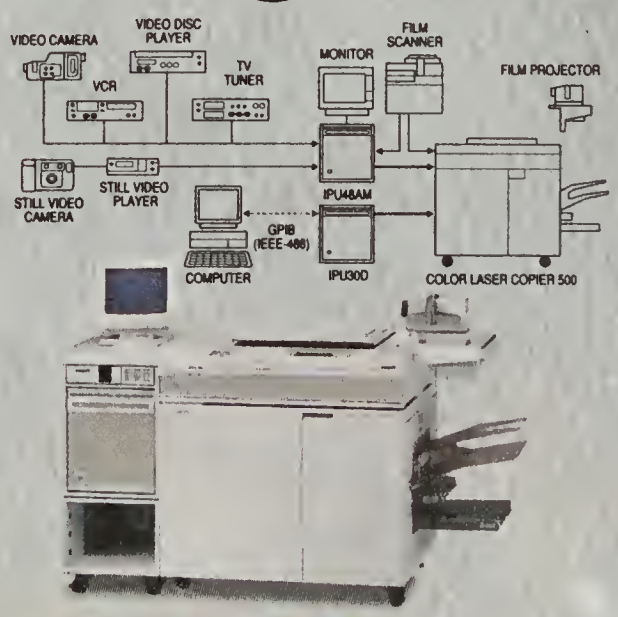

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EDITORIAL

Image vs. reality

IF YOU'RE THINKING of document imaging technology as the "spreadsheet of the 1990s," consider the conclusions of a recent Nolan, Norton & Co. survey of 200 organizations: It found that 35% were using imaging while another 23% were actively investigating its possibilities. "Imaging is generating benefits in every major vertical market," Nolan, Norton's Thornton May concluded.

But there's trouble as well. Despite imaging's rapid acceptance, "Most people aren't succeeding" at their efforts to exploit the technology, May said. In fact, a Nolan, Norton research report found that the vast majority of imaging users are stuck in a rut, unable to expand the technology beyond a pilot project or single department.

How can it be that a technology that has come of age so quickly can be used so badly by so many people? It's because imaging turns out to be much more than a technology; it's a new way of doing business. And users who fail to recognize that are doomed to get stuck in first gear.

Experts say the most common mistake user organizations make with imaging is not looking beyond the potential of the technology to change the business. For example, any business that moves a lot of paper is hamstrung by the fact that only one person can work on a single piece of paper at a time. Imagine the productivity benefits if a whole group of people could get at that piece of paper without having to move it sequentially from desk to desk? That's what imaging provides. In one case cited by Nolan, Norton, an insurance company cut the time it needed to process applications from 24 days to four days by doing just that. Customer service improved, too.

But hold on. That kind of change is scary to large organizations. What about the clerical employees who will be idled? How do you teach 30-year employees to change their sequential approach to managing tasks? How do you retrain an entire work force that has become accustomed to doing things in a rigid, formal way?

When you talk about process redesign, the issues — and the costs — become much bigger than the $25,000 or so that a full-blown imaging system costs per user. In fact, early imaging adopters nearly doubled their imaging-related expenditures between 1989 and 1990, according to the Association for Information and Image Management. And the indirect costs of retraining users and selling the concept to the work force is potentially much greater.

Imaging extends far beyond the information systems department into the very nature of the business. Little wonder that many organizations faced with these choices have opted for the safe route and used imaging as a way to do things a little faster instead of doing them a lot better. That's too bad because for large, paper-oriented businesses, imaging may be a real productivity breakthrough. And it's one in which the IS department can play a leading role. It is up to IS management, however, to understand the potential and the problems of imaging and go into the technology knowing just what a big deal it is.

LETTERS TO THE EDITOR

Innovate to win

In your editorial "Lessons of War" [CW, Jan. 28], you ask why America is capable of producing extraordinary high-tech weapons yet not able to compete with Japanese manufacturing.

It seems clear that America's strong point is brilliant innovation. Consider how many Americans have won the Nobel prize. In light of this, it is hardly surprising that we are able to create unbelievably advanced weaponry or computer products. What America lacks, however, is inexpensive, high-quality labor; something abundant in Asia.

For better or worse, America will probably have to content itself to excel in what it does best and continue to make that unique contribution to the world economy.

Jacob Stein
Monsey, N.Y.

Point of order

Regarding Alice LaPlante's article, "Survival tips for the coming year" [CW, Dec. 24/Jan. 1] the sequence of the 10 survival tips is out of order, at least from a business executive's view. On a point-by-point basis, the advice is good, yet the broader lesson is understanding priority emphasis from the viewpoint of those who demand your services.

- No. 8, get close to the end user, should be No. 1.
- No. 9, know your organization's business goals and objectives, should be No. 2.
- No. 7, work on your communications skills, should be No. 3.
- No. 6, be aggressive in applying technology to your company's business problems, should be No. 4.
- We agree on No. 5, master a broader range of skills.
- No. 4, get downsizing experience, should be No. 6.
- No. 3, become a connectivity expert, should be No. 7.
- No. 2, learn about graphical user interfaces, should be No. 8.
- No. 1, develop strong personal computer skills, would have been No. 1 in 1983: Now it falls into 9th place.
- We agree on No. 10, think constantly of your career path.

Without this reprioritization, the article leads information systems managers down a weak path.

Jim George
Systems Integration Consultant
D. Appleton Co.
Manhattan Beach, Calif.

Get it on tape

After reading the recent article entitled "University erases tape from computer center" [CW, Jan. 21], one is left with the impression that direct-access storage devices or optical-disc devices are being used as alternatives to magnetic tape. In fact, magnetic tape cartridges are still being used; they just happen to be packaged in a different form.

What the article does convey is that an automated tape library provides the solution to efficiently store and retrieve large amounts of data in an unattended manner. It also points out the viability of fiber-optic connectivity to an off-site device to support electronic vaulting — also in an unattended manner.

However, the use of nonstandard magnetic cartridge tapes (IBM 3480-type) preclude the exchange of data to and from other organizations and requires that disaster recovery be dependent on the availability of a proprietary device. This may be fine for a university, but it may not be acceptable to the majority of commercial customers.

Dan L. Costantini
Systems Engineer
Memorex Telex, Inc.
Montreal, Que.

Software abounds

Once again an article, "Users hold off on open systems" [CW, Feb. 4], addresses the issue of software not being available for the Unix environment. I find this hard to believe.

As a consultant and developer in the Pick, Prime Information, Unidata and Vmark industries, I have access to more than 3,000 application packages that run within the Unix environment. These same packages are also available within proprietary operating systems and have been since the 1970s. The choice of hardware and software is limited only by my clients' imaginations.

I am not sure where the lack of software is, as I simply look in one of the software catalogs on my bookshelf.

Richard A. Wilson
R.A.W. Data Systems, Inc.
Smithfield, R.I.

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It's shareware, not virusware

Misconceptions about safety prevent many people from using shareware

ROB ROSENBERGER

Shareware gets a bum rap. Pick up any major newspaper or magazine and you'll find experts discussing an epidemic of viruses in shareware programs. "Purchase only retail software," they warn. Many firms and federal agencies take this advice and ban shareware, ignoring the fact that at least 17 firms have included viruses in thousands of copies of shrink-wrapped retail software.

Many stores today accept returns on unopened packages, presenting the threat of viruses in rewrapped packages. An Egghead Discount Software outlet recently gave $750 in gift certificates to a customer whose software was infected after store employees put a returned product back on the shelf. Egghead claimed it has since clarified its policy on software returns, but it doesn't have a monopoly on computer stores. Many virus experts say other stores experience the same problem with rewrapped software.

Comdex and PC Expo conventions have problems with viruses spread by booth personnel who trade floppy disks like baseball cards. Microcom, Inc. the company behind Virex and Virex-PC, scored a publicity coup last year by sending people to inspect computers at PC Expo. They cleansed dozens of infected disks. Microcom Vice President Robert Capon said this parallels his experience at every major convention since 1988: "We've bailed out more companies attending trade shows than you can imagine."

Compare this with the shareware industry's record of spreading viruses. 1990 saw shareware's first recorded case of infected master disks. The author shipped four infected disks; all four recipients detected it and returned or destroyed them. This occurred two years after the first of many similar events involving retail master disks.

Why does shareware have such a great track record compared with the retail industry? The answer lies in bulletin boards and disk vendors, the two major distribution channels for shareware today. Most people who obtain programs this way constantly look over their shoulders, reducing the chance a virus will get into the system.

Disk vendors serve as a clearinghouse for shareware. They often get programs direct from the authors and scan them for viruses before offering them to customers. Retail stores can't check the disks they sell without breaking a shrink-wrap seal in the process.

Bulletin board operators, known as sysops, have successfully dealt with the threat of malicious software for more than a decade. Most bulletin board users double-check the sysop by running virus-detection programs on any software they download.

John Geralis

Virus expert Rich Levin has watched the shareware industry since the early 1980s and claims "people who use bulletin boards and shareware usually practice better virus safety measures." Indeed, in 1987, the bulletin board community received the first IBM Personal Computer software designed to stop infections at a time when some experts still dismissed viruses as an urban legend.

If we have so many horror stories in retail software and so few in shareware, why does shareware get a bum rap?

- **It seems so plausible.** You can get a virus if you share software. Shareware thrives on people who share software. Bulletin boards carry a lot of shareware. Therefore, people assume they account for a large number of infections.
- **The experts label their assumptions as fact.** Reporters talk to computer security consultants to get the information (and quotes) they need for a story. A recent survey by Empirical Research Systems indicated almost half of these experts formed their opinions on viruses just by reading newspapers. This means the noncomputer press feeds consultants information, which they later regurgitate for other reporters, who write more stories, which other consultants read. This same poll concluded by estimating only one-third of computer security experts have an adequate knowledge of the virus threat.
- **Retail stores tell it to customers.** Software stores make money selling software. If a customer expresses concerns about paying so much for a retail program, a store employee can point to any number of experts, and say, "We don't sell viruses."

Does this mean managers will greet shareware with open arms? No. Many companies need to control incoming software so they can standardize on specific packages and deter software piracy. In these cases, a wise supervisor will restrict the trial use of shareware without slapping a complete ban on it.

Company policymakers must conquer their fears before they can confront the real virus threat. Ignorance thrives on hysteria, and hysteria has blamed shareware for spreading the majority of viruses.

Rosenberger is proprietor of Barn Owl Software Co., writes shareware phone bill analysis software and serves on the board of directors of the Association of Shareware Professionals.

Information technology: Promises remain unfulfilled

DENNIS E. NOONAN

For the last decade, we've all been awaiting the fulfillment of predictions about the labor-saving potential of sexy new information technologies. There have been a host of them — office automation, desktop computing, expert systems, natural language, artificial intelligence, integrated networks, relational databases — and they've all promised to make a significant impact on the daily lives of business users.

Well, the predictions and promises were partly right. There was an impact. Recent studies have indicated that the work week for the typical white-collar professional is 20% longer than it was ten years ago. Yet during this same period, white-collar productivity has declined. Although most office workers have routine access to a computer terminal or a personal computer, the majority of knowledge workers are working harder today to accomplish less.

What happened to the four-day work week, the paperless office and the electronic cottage? If modern technology was supposed to increase productivity, then how come everyone is more stressed-out and overloaded than ever before? Why are desks cluttered with laser-printed copies of electronic-mail messages? Why is everyone in a meeting when you call them? Why are users still complaining? Is this productivity?

Of course it isn't. Everyone still talks about productivity, but nobody does it anymore.

The productivity gap is clearly the result of rampant technophilia. Technological advances in hardware have created mammoth opportunities for developers to offer seemingly endless software variations and upgrades without actually inventing a new software product.

One result of this endless search for variety is that a lot of business software is designed as an adventure game. Here are the real rules of the game: You must hit the right buttons at the right time and you win; if you strike the wrong key, you lose. Do not attempt to play without reading the READ.ME file or the documentation, which has been shrink-wrapped for your protection, or the assorted inserts that have been included to update the erroneous documentation in the manual.

Somehow along the way, the software development establishment seems to have successfully convinced the buying public and technophiles who write product reviews that software has a right to be defective. "New software always has a few bugs," we are smugly and patronizingly informed. "Software design is a very complex activity."

Most users simply want a no-nonsense product that installs quickly and does the job without blowing up when you hit the wrong key. One PC user laments, "When I install a new revision, I often feel that I'm performing gamma testing."

Technophiles deprecatingly call this type of software "idiot-proofed," but I don't buy that line at all. It's the same kind of attitude U.S. auto makers used to take with American consumers until Japanese and German engineers proved that there was a better way.

To forgive is divine

Users want a system that is "forgiving" when they are in novice mode and sophisticated when they are ready to stretch. Technophiles, on the other hand, tend to view the world as a complex place full of unhappy alternatives. Compromises are necessary, they insist. So you get either a sophisticated system that requires a master's degree in spreadsheet-publishing or a user-friendly system that assumes the user is an imbecile.

The answer isn't in the interface, either. Most users don't really care about a graphical user interface. Techies and game players love high-resolution, animated color graphics because they understand how elegant and hard it is to accomplish. If you asked them, though, most business professionals would gladly trade cute little icons for a product that was easy to install and safe to use.

What professional users do need are PC-based systems that can search through huge distributed databases and come up with answers — with blinding speed. The disk should not need backing up. The system should be as connectable and as easy to use as a stereo system. The user should not have to adjust the way he does a job to the quirks of the machine connected to the keyboard or mouse.

Yet many users today still can't get at the information they need without learning how to write code. Databases can't talk to each other. Response time on local-area networks is getting to be "just like the old days." There are too many technical complexities for most business people to deal with.

The first PC revolution was led by professional users, not by hardware or software system developers or industry experts. The next revolution could be lead by these same folks and, unless some things change, the direction it takes could be toward the PC-less office.

Noonan is a free-lance writer based in Wellesley, Mass.

Given the situation, a recovery plan is advisable.

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IBM 3390 market set to open

Lower prices, alternative products to compete with Big Blue mainframe

BY JEAN S. BOZMAN
CW STAFF

Springtime may bring bigger discounts and stiffer competition in the high-end disk drive market.

Until now, few discounts have been offered to IBM 3390 customers largely because there has been no need for IBM to offer discounts, according to users and analysts.

Now, industry watchers say, IBM mainframe users who are evaluating IBM 3390s can expect to see some alternatives and lower prices sometime this spring, as competing products are shipped in volume and open up the market.

IBM, which announced the high-end 22.7G-byte drives in November 1989, has been shipping them in volume for approximately 15 months.

Last year, IBM shipped about 20,000 IBM 3390 units, according to Fara Yale, an analyst at Dataquest, Inc. in San Jose, Calif., who said that number came from IBM storage executives.

"IBM can get a premium price for the 3390, and the plug-compatible manufacturers [have needed] 18 months to introduce an equivalent product," said Mark Hess, director of the Large Computer Strategies Division at Gartner Group, Inc. in Stamford, Conn. "Once competition sets in, IBM will start countering with discounts," Hess added.

Analysts also said they expect IBM to announce a high-priced 3390 Model 3 later this year.

Hitachi Data Systems, Amdahl Corp., Storage Technology Corp. and Memorex Telex Corp. are all positioning their answers to the 3390, although development of some of those offerings has dragged.

The primary competition for the 3390 is the 5-month-old Hitachi 7390, but availability of that drive has been limited by ramp-up problems, which industry analysts said are connected to quality control problems. The Hitachi drive is expected to ship in volume by April.

Orders have been backlogged because of a slow ramp-up at Hitachi factories in Japan and Oklahoma, said Jack Igoe, Hitachi's new director of disk marketing. "People are ordering more of [the 7390s] than we currently have available," Igoe said.

Yale said many 7390 units are being held in inventory for an unidentified engineering change.

6390 expected soon

By April, Amdahl is also expected to announce its 3390-equivalent, the Amdahl 6390, which is scheduled to begin shipping in the spring, analysts said.

Despite efforts to move quickly, the testing period to ensure full 3390-compatibility has taken longer than expected, Amdahl's Chief Operating Officer Joseph Zemke told financial analysts recently.

"We have to do a better job of shortening the time between IBM's introduction and our own delivery," Zemke said. "Yes, it does give [IBM] an opportunity to sell into their accounts, and I'm not satisfied [with the situation]."

Amdahl gets 16% of its $2.1 billion in revenue from storage products.

As in the past, Amdahl's drives are based on technology from Fujitsu Ltd., which owns 43% of Amdahl.

"It's the same base product as Fujitsu's," confirmed Al Richards, manager of storage systems marketing at Amdahl. "The hardware is basically the same, but we use it differently."

The Fujitsu drive surfaced last year; Amdahl had to write new software that responded to IBM's 3390 microcode instructions and enhanced Systems Managed Storage (SMS) features, Richards said.

There are two other storage systems players yet to be reckoned with, according to analysts. Storage Tek, which plans to ship a noncompatible high-end drive called Iceberg in 1992, and Memorex Telex, which said it will announce a 3390-compatible drive in the third quarter. Both were designed to work in IBM's SMS software environment.

Discounts at large sites

Even without competition, volume discounts for the IBM 3390s have surfaced, but that has been at some of the largest IBM sites, which are installing the greatest number of the $200,000-plus IBM 3390 drives.

However, users at the largest IBM sites continue to buy IBM 3390s on a regular basis, as well as the older IBM 3380s and 3380-compatibles.

Other IBM mainframe users are waiting for the market to become more competitive.

"We're in no hurry here to buy any more IBM 3390s," one Northwestern region IS manager said. "Our company is on a tight budget, and we're trying to use up the capacity we've already got in-house."

New HP mini makes splash at aquarium

ON SITE

BY J. A. SAVAGE
CW STAFF

MONTEREY, Calif. — The Monterey Bay Aquarium is perched on the intertidal zone at the edge of Monterey's Cannery Row, made famous through the book of the same name by John Steinbeck.

In Steinbeck's book, Doc Ricketts collected all manner of amphibians, fish and marine mammals from the bay.

Since Ricketts' time, Monterey Bay has been overfished and has suffered from urban development. However, since 1984, when the aquarium opened, visitors have been able to see, behind glass, many live versions of what Ricketts collected, as well as some deadly species that he never stumbled on.

The aquarium has been a hit, but its 1985-vintage minicomputer has paid the price. The aquarium's slimy, warty, cute, scary and sometimes goofy-looking captives entertain and inform as many as 10,000 people per day, and the computer has to deal with them.

Until early February, a Hewlett-Packard Co. 3000 Series 42 minicomputer was chugging along, keeping track of visitors, 600 volunteers and 325 staff members, a growing bookstore, a warehouse and the 3,000 pounds of fish food per month it takes to feed the captive population. An HP 3000 Series 932 is now taking over the job.

Monterey Bay Aquarium

Monterey Bay Aquarium *uses computers to keep track of its fish and their visitors*

The original choice of HP equipment and the decision to continue with the vendor may have something to do with the source of original funds for what Dave Rasco, the aquarium's office automation coordinator, calls "a simple country fish house."

HP Chairman David Packard and his wife, Lucile, donated the $55 million it took to build the showcase. His daughter, Julie Packard, is the aquarium's executive director.

But the organization still has to pay retail price for its HP minicomputer.

"David Packard may have built the aquarium, but we haven't received any support from him since opening," said Michael Pinto, the aquarium's director of finance and administration. He dismissed the choice of vendors by saying that there is no di-

Continued on page 32

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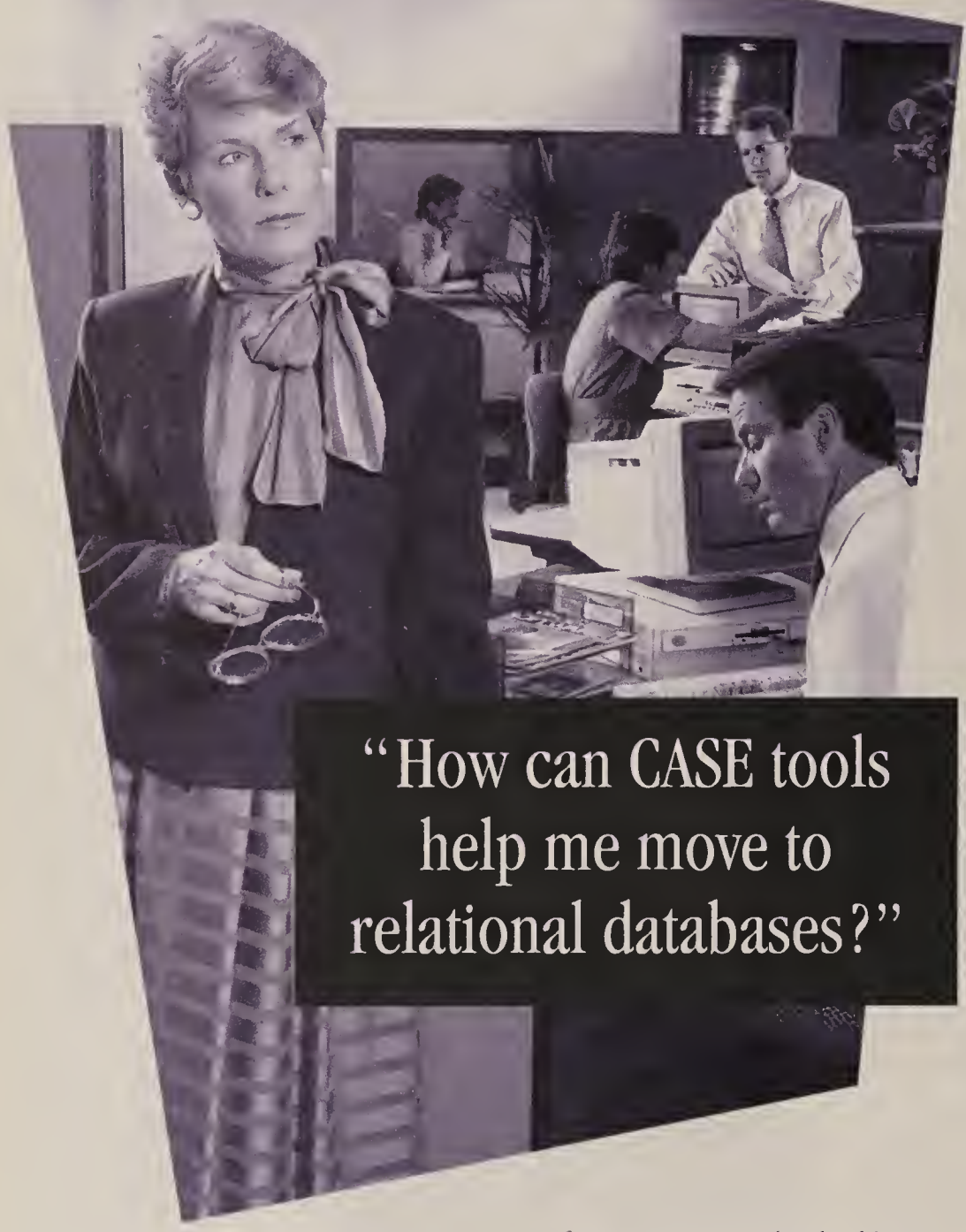

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Smart money managers can avoid cost of DASDs

ANALYSIS

BY JOHANNA AMBROSIO
CW STAFF

When the going gets tough, the tough turn to systems software to help avoid costly hardware add-ons. Users report that with some software tools and upper management's increased willingness to give them personnel and money devoted to the job, they can get more out of existing systems, particularly during troubled economic times.

Navistar International Corp. in Chicago has managed to avoid adding direct-access storage devices (DASD) to its arsenal for the past three years because of an aggressive management program started in 1985. The original idea was to apply Deming's Statistical Process Control theories to the data center, said Mike Watson, manager of productivity and quality improvement.

Over the past few years, Watson said, Navistar has saved millions of dollars with a combination of off-the-shelf and in-house developed software. The company uses Legent Corp.'s MCS software and IBM's Hierarchical Storage Management (HSM) scheme with its own models.

"We have models to evaluate the costs based on the age and size of the data set, the number of times it has been accessed and the statistical probability of its being accessed again after a certain number of days," Watson said. "We can set the parameters that are most cost-effective for us, we can balance things out, and we can economically defend our decisions."

However, "it's not smoke and mirrors," he said. "We've been through two processor upgrades and a memory upgrade since 1985. Our loads are growing — we've just managed them smarter," he added.

At Maryland Casualty Co. in Baltimore, "my charge is to make our new system last for two years, no matter what," said John Melville, manager of systems resource management. "We're not going to spend another $8 million on a mainframe before that."

In December, Maryland Casualty added an IBM Enterprise System/9000 Model 9021-580 as its second mainframe. "Capacity optimization is a big project for us," Melville said. "In the past, it was done as people had time. Now, senior management recognizes it as an important savings. It's become a formalized process, regularly scheduled."

A probing Strobe

Melville said he expects to buy a package that he has piloted sometime this year. Strobe, which was developed by Programart in Cambridge, Mass., identifies which jobs are using excessive resources, Melville said. "Our goal is to run every application through Strobe before it goes into production. Our tests indicate that Strobe allows you to reclaim 10% of your CPU cycles."

Another tool Melville said he expects to buy is called Innovation Access Method from Innovation Data Processing in Little Falls, N.J. "It's a VSAM replacement package," Melville explained. "It not only breaks through VSAM's 4M-byte limitation on data sets, but it also saves about 25% on DASD and improves performance by about 50% over VSAM," he said.

There is another real plus to using this kind of software. Mike Wharrie, supervisor of planning support at Hudson's Bay Co. in Toronto, said his Legent capacity planning software allowed him and his team to bargain better with IBM when it came time to buy a new mainframe.

"We were going to defer the 600J, which we installed last September," Wharrie said, "but then IBM offered us an upgrade from our 600E at no incremental financial cost. The information is leverage, and boy, do we use it."

IBM must have known that was no idle threat. Back in 1985, Hudson's Bay deferred a hardware upgrade for six months, for a savings of $750,000.

"You have to be prepared to make some hard decisions and live with them," Wharrie warned.

According to Melville, "to save capacity, you need a little excess capacity to move around in. You need 10G to 15G bytes of DASD to get HSM rolling. Once you do, it pays you back with even more."

"There are a lot of software tools out there, many very good," he said, "but you need the management commitment, or all the tools in the world won't help you. It has to be understood that this will cause extra work but that there is a benefit."

IS department nurses hospital computing ills

ON SITE

BY SALLY CUSACK
CW STAFF

PROVIDENCE, R.I. — While many companies and business entities have been concentrating on downsizing or outsourcing operations, the information systems department at Women and Infants' Hospital has been busy growing both its IS staff and its IS systems to meet the computing needs of modern medicine.

Bruce Reirden, vice president of information services, recalled that when he arrived at the health-care facility in 1988, six people were responsible for IS in a Data General Corp. MV computing environment.

Today, the fifth-largest obstetrics hospital in the country has doubled its IS staff and employs several part-timers.

In addition to requesting staff increases, Reirden spearheaded a drive to replace an aging DG MV 4000 and MV 10000 with DG's top-of-the-line MV 40000, which supports 220 devices on an Ethernet network, including CRTs, printers and embossers.

With the system installation completed in October 1989, the hospital moved ahead in December with plans for a much needed software upgrade. Women and Infants' had previously been using Version 6.6 of Professional Health Care Systems' Patient Communication package.

According to Reirden, the change to Version 7.1 was initiated in December 1989 and completed in May 1990. The nature of the upgrade was so great, Reirden said, that it was comparable to changing vendors.

"The typical problem in any hospital is that each employee has his or her own job to do, in addition to learning a new software system," Reirden noted.

Hands-on involvement

In this instance, employees were responsible for helping to define individual screens, reporting requirements and appropriate tables. The heads of all departments were involved in the upgrade and installation, including the training, planning, documentation and testing phases.

The upgrade offers Women and Infants' several significant advantages over the previous version, Reirden said. Among them are automated patient registration functions and increased reporting capabilities.

Perhaps even more importantly, the system now allows information from the admitting process to be passed electronically onto the billing application, which eliminates a tremendous amount of paperwork.

"Before, all health insurance-related information, such as Blue Cross/Blue Shield requirements, had to be captured from the CRT and transferred onto paper to be sent to billing," Reirden said.

Women and Infants' *system upgrade lets doctors give patients more attention*

Along with the shiny new computer and the sophisticated software package, the hospital has replaced its traditional 9.6K bit/sec. lines with a microwave and fiber-optic communications link to transmit data between the computer center and main medical facility.

According to Reirden, DG's Network Services Division designed the network and subcontracted Diversified Communication Technology, Inc. in Abington, Mass., for the actual microwave installation. Reirden said he feels that DG's field service staff is "the best" and added that the network was installed over a period of three weeks.

"Now, we get an instantaneous reponse," Reirden said. "We also looked at laser options and T1 technology. The problem with laser is that it is very susceptible to snow and rain, and the T1 tends to be expensive."

Even with the hardware and software upgrades and the networking installation behind them, Reirden and his staff are not kicking back to rest.

The hospital recently installed a DG Aviion 6200 to automate all laboratory testing functions and is evaluating an operating room scheduling package to run on a personal computer-based local-area network.

"We rely heavily on end-user input," Reirden said.

"They have to tell me what they need to run their business. It's my job to tie it into the overall computing strategy."

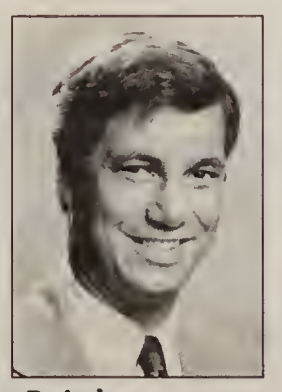
Laboratory system on its feet without tired soles

The third segment of Women and Infants' troika of projects was the installation of a laboratory information system that has cut down on time, costs and shoe leather wear and tear.

Running software from Medical Information Technology, Inc. on a DG Aviion Model 6200, the laboratory system has already partly automated a process that was entirely manual. Bruce Reirden, Women & Infants' vice president of IS, said the system will be completely automated within one year.

When a patient needs laboratory work done, the doctor sends an order to the laboratory. Reirden said he plans to replace the current manual system by having the orders for laboratory work placed at the point of service.

Once the order is entered into the laboratory computer, the test is run and the results are sent from the machine processing the sample directly to the computer via Ethernet, a process that "significantly increases accuracy," Reirden said.



Reirden: *process increases accuracy*

If the work is for patients in the emergency room, the delivery room or the neonatal intensive-care unit, results are sent to printers in those units. The remainder is distributed by foot, but Reirden said that process will also go on-line.

The system, which went live early last month, has run into the inevitable snags. "We had to do a fair amount of scrambling to resolve problems," Reirden said. "The biggest problem is that we got buried with paperwork. We went from a manual system that dealt with one slip of paper to an information explosion."

For example, a report printed in the emergency room would also appear at the main printer, and copies were also generated for the patient's physician and medical records. Reirden said the paper glut has been cut by about two-thirds.

CAROL HILDEBRAND

DG adds to CEO software

BY SALLY CUSACK
CW STAFF

WESTBORO, Mass. — Moving steadily toward a common user interface on the desktop, Data General Corp. recently announced Version 3.0 of CEO Object Office, its object-oriented, icon-driven graphical user interface for the MS-DOS platform.

The only glitch for would-be users is that they must have a DG MV midrange computer to run the software.

The CEO office automation portion of the program resides on the MV platform, while the object-oriented, graphical user interface is implemented at the personal computer level, running on top of the Microsoft Corp. Windows and Hewlett-Packard Co. New Wave architectures.

The product provides electronic mail, filing and print services; Version 3.0 adds support for Novell, Inc. Netware.

Thomas LaMarche, information systems manager at the Maricopa County Flood Control District in Phoenix, has been beta-testing Version 3.0, and the organization has been using Release 1.0 for six months. "We got into it because we're putting PCs on peoples' desks to do a variety of different things," said LaMarche, adding that all new hires are issued a PC.

The Flood Control District has been using DG office automation equipment since 1983, and it currently uses the company's high-end MV 40000 for most of its computational needs. LaMarche estimated that 200 users are using the system primarily for office automation applications across DG's proprietary PCI network.

Other components

The organization is also using two MV 2500 machines as well as a DG Aviion 5220 dual processor, Unix-based server. Although the Flood Control District had been running the CEO office automation product for some time, it considered Object Office when end users were reluctant to use PCs. According to LaMarche, they tended to treat their PCs as dumb terminals. "I hate to admit it, but a lot of our users had problems with DOS," he said. "We needed something to get people to use the PCs more, and they seem to take to menu-driven systems like CEO."

The Object Office portion of CEO Object Office allows the organization to use more PC software packages and permits end users to leapfrog the somewhat cumbersome DOS commands.

LaMarche currently has 46 active CEO Object Office users and said he anticipates adding another 24 during the the next several weeks. Most are using either a 25- or 33-MHz Intel Corp. 80386SX-based machine with a minimum of 4M bytes of memory and a 40M- or 100M-byte hard drive. Object Office requires 12M bytes of hard disk space.

CEO Object Office *now provides electronic mail, filing and print services, in addition to supporting Novell Netware*

With some of the users also running Lotus Development Corp.'s Lotus 1-2-3 spreadsheet software and others running engineering applications, LaMarche considered the estimated $3,000 per platform as money well spent. "Buying dumb terminals just didn't seem like a good investment," he said.

LaMarche said he sees several advantages to the CEO Object Office environment, foremost of these being the graphical user interface, which serves to isolate users from the operating system.

"People usually don't need to know the underlying program," he said, "and the point-and-click, mouselike system allows them to bypass this."

Another benefit, according to LaMarche, is that the product allows the creation of shared file systems, and the organization can now keep PC documents for distribution across the network via the CEO filing component residing on the MV 40000.

In addition to the newly added MS Windows 3.0 support, the most current version of Object Office includes an offering called Netware Transport MV.

"Our intention is to deliver Portable Netware on the MV in phases, and the first phase is Portable Netware MV," said Bruce Evans, product line manager for office systems at DG.

In a continuing effort to open up systems, Evans added that DG is also working on a version of the product to run on the Aviion Unix-based server platform.

Du Pont employs Expert help to increase database benefits

A DEC offering is helping to maximize database efficiency

BY MARYFRAN JOHNSON
CW STAFF

Faced with the job of restructuring an enormous database for Du Pont Co., software engineer Greg Ballance called in some expert help and ended up with 20% better performance.

His helpmate was a bit unusual, however. In a field in which tedious, people-intensive work is required to tune and optimize a complex database, this assistant was a software tool: RDB Expert from Digital Equipment Corp.

The physical database design tool, which began shipping a few weeks ago, is equipped with its own expert system and is targeted at database administrators and developers working with VAX RDB/VMS and VAX database management system databases.

"Most any kind of work with a database has to be done manually, but this takes you a step away from that," said Ballance, who works as an on-site consultant for Du Pont but is employed by Walklett Burns Ltd., a consulting firm in Malvern, Pa.

RDB Expert, which DEC sells at prices ranging from $2,340 to $149,400, tunes and optimizes performance by analyzing the logical design, transaction work load, data volume and system environment of a database. Then it generates executable procedures for creating a new design or restructuring an old one.

Using the product in field test for the past six months, Ballance was able to tune the quality control applications that were straining Du Pont's systems. The company plans to extend its use of RDB Expert as a performance tool, tuning the quality management applications at individual plant sites, the engineer noted.

"This tool really sounds interesting to us," said Joseph Archer, assistant vice president of application development at Colonial Management in Boston. "Our database administrator could use it to check whether we're normalizing our data correctly."

This ability could, in turn, help Colonial cut back its spending on DEC database consultants, Archer said. "We'd have the opportunity to analyze our databases much more often and do the job right from the start," he said. "Anything that can help you get to an optimal situation with RDB as quickly as possible is a benefit."

Hooks included

RDB Expert works in conjunction with Dectrace, a layered software product that collects and reports data and performance information from applications and databases. "The hooks between Dectrace and other DEC products are already there, but you put in the actual calls yourself by changing the application," Ballance said.

Another database consulting firm using the new database design tool in field test is JCC in Granville, Ohio.

"RDB Expert is not a substitute for good design but a supplement," said Jeff Jalbert, president of JCC. His database consultants found that for large, complex applications the tool proved to be a useful guide for reorganizing the database.

"This gives us a snapshot of the database under different load conditions. It can tell which queries are important, then go in and look at those," Jalbert explained.

RDB Expert whirs through the tedium of massive data compilation and analysis in less than an hour or two, while the manual method may take a team of database experts days or weeks.

"We are able to use it as a foil to test our ideas," Jalbert said. "No computer program will replace thoughtful reflection by a human being, but for simpler problems it tended to get to the answer quickly."

> RDB EXPERT TUNES and optimizes performance by analyzing the logical design, transaction work load, data volume and system environment of a database.

The debut of RDB Expert marks the first time DEC has made use of expert system technology in a high-volume product, said Vicki Farrell, a marketing manager for DEC's database systems group.

In one customer benchmark, Farrell said, three DEC consultants spent 20 weeks tuning and tweaking the design of the customer's database. Once they finished, they set RDB Expert to the same task. Five days later, the tool produced its own suggested design.

"It was not quite as good as what the experts came up with, but it took one expert only another week to tune it to where the three had gotten to in 20 weeks," Farrell said. "RDB Expert got about ⅞ of the job done."

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Users await depreciated prices

BY MARYFRAN JOHNSON
CW STAFF

Like used cars that no longer command a premium price, VMS operating system licenses from Digital Equipment Corp. will be depreciated on older VAX models under a new set of software business practices DEC announced recently.

Although no prices will be revealed until mid-March, DEC officials also backed away from an unpopular policy that charged full price for VMS licenses to customers who upgraded their VAXs with used boards from resellers.

"It sounds like DEC is trying to do something better, but the key factor is pricing and how much they depreciate [the license fees]," said Karlyn Kilroy, an analyst at Technology Investment Strategies Corp. in Framingham, Mass.

Under DEC's new upgrade practice — called the "from-to license option" — customers who upgrade with used boards will get some credit for the price of their current license toward the cost of an upgraded license, according to Mary Welch, a DEC software business marketing manager.

"In the past, DEC kept the same price for a VMS license over time," Welch explained. "Now, as we introduce new technology in the same cabinet, we will reprice the hardware and software."

Welch acknowledged that announcing a policy change with no pricing information will seem "somewhat empty" to users, but, she said, the complexity of repricing software requires more time.

DEC's review of its licensing charges for upgrade customers was prompted by the Digital Dealers Association in Chelsea, Mich., which raised the objection last month that charging full price for a VMS license upgrade would crush the used equipment market. Now DEC appears willing to give upgrade customers a break, although with the VMS depreciation, it will be based on a license of lesser value.

DEC will not try to collect any additional fees from customers who have already moved their VMS license from older to newer technology, effectively "grandfathering in" whatever deals those customers struck with their DEC representatives, Welch said.

> "AS WE INTRODUCE new technology in the same cabinet, we will reprice the hardware and software."
>
> MARY WELCH
> DEC

Aquarium

CONTINUED FROM PAGE 27

rective to buy HP, but that HP makes perfectly good computers. Rasco indicated that it may be something else. "We don't want Packard coming in here and seeing Sun equipment," he said.

Pinto did not wait six years for the current upgrade because of a lack of money, but by waiting, he said, he felt he got a better deal. "Every year you wait, the performance goes up, and the cost goes down. You get more machine for less money," he said.

The old system was "bogging down" under the cumulative weight of several new applications during the past year, according to Pinto. He had added a new work order application, preventive maintenance scheduling on the physical plant and more reports.

> "EVERY YEAR YOU wait, the performance goes up, and the cost goes down. You get more machine for less money."
>
> MICHAEL PINTO
> MONTEREY BAY AQUARIUM

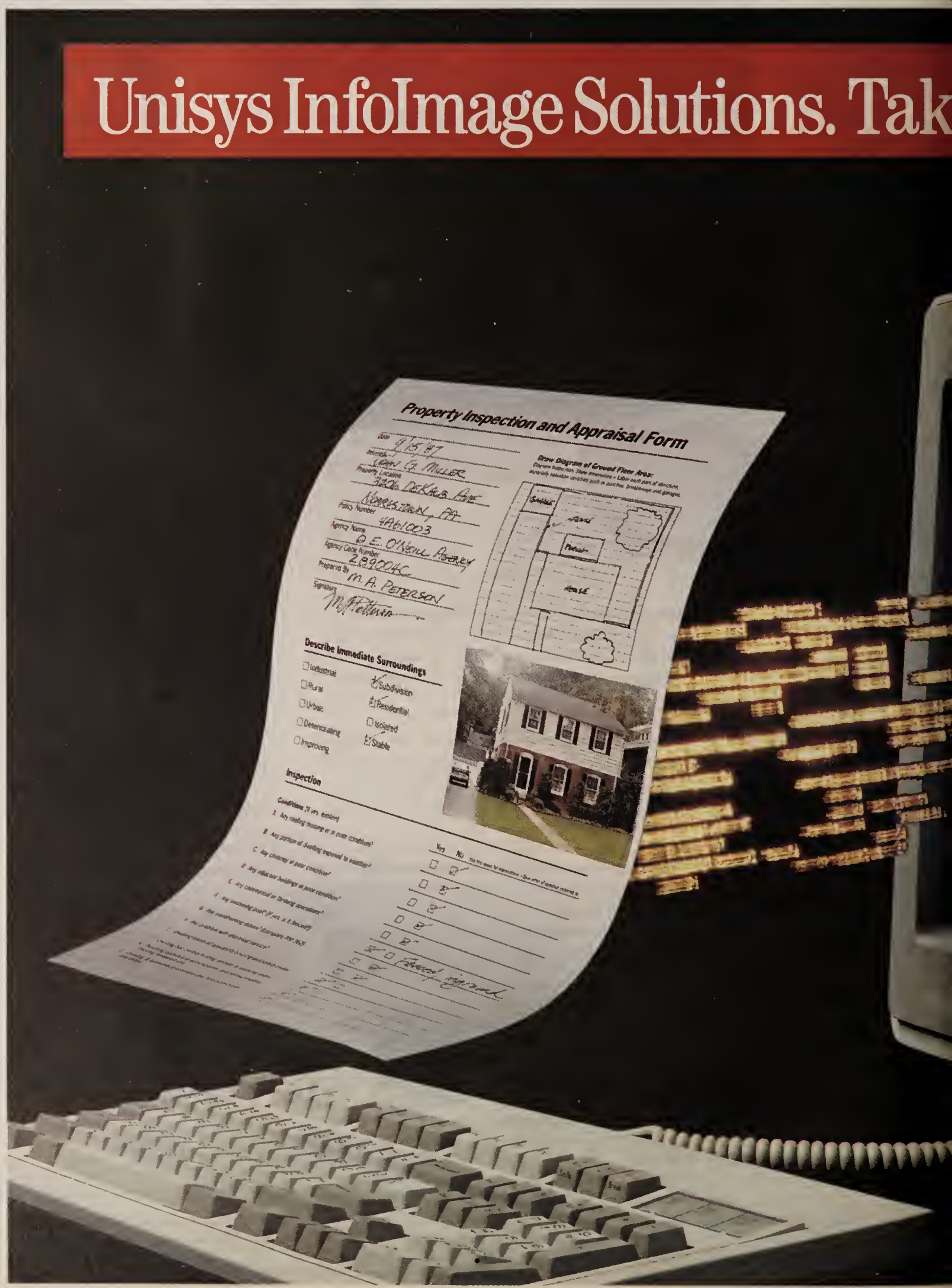
Despite the system's slowness, "we were able to hang on to it. It was doing its job. The checks kept getting issued every week," Pinto said.

The new computer will allow expanded operation of the bookstore, which is a mainstay of revenue for the nonprofit aquarium. The tiny on-site bookstore will be fed from two off-site warehouses.

The aquarium is updating its inventory software to include multilocation inventory and access to more main data, according to Pinto. It is also slated to handle another dozen personal computers on the system this year.

With the new minicomputer, the aquarium is staying with direct connections rather than a client/server, networked environment.

"Networks are not worth the headache," Rasco said. "There's not a lot of file sharing. Instead we use spooling and print-sharing capability." Rather than relying on electronic mail, aquarium staff members communicate internally by voice mail. "If we were starting new, we would bring in a network," Rasco added. "But we don't want to rock the boat too much."



Brownstone Solutions offers line of 'easier-to-use' CASE products

BY ROSEMARY HAMILTON
CW STAFF

Brownstone Solutions, Inc. recently made available a new release of its data dictionary for computer-aided software engineering (CASE) that has more functions and an easier-to-use front end, a company official said.

The Brownstone data dictionary, which runs on IBM's DB2, has been sold as an alternative to the IBM Repository Manager for CASE environments. With this release, however, the company is shifting gears to provide not only a dictionary, or repository, environment but also more tools and assistance to help users work with IBM AD/Cycle products, including Repository Manager.

"IBM will be at some time fulfilling that role [of repository provider]," said Barry Brown, a Brownstone director. "We knew all along ours was more of a stopgap. We will continue to offer a version of it, but we are now concentrating on the role of integrator. Someone has to be responsible for allowing users to utilize the different components in the AD/Cycle picture."

The new release includes a front end that is compliant with IBM's Common User Access standard. It was designed to allow users to navigate more easily through the Brownstone software and into the AD/Cycle world, Brown said. It has action bars, pull-down menus and pop-up windows to improve productivity.

"We got beat up a little bit in terms of our functionality being delivered in a fairly complex format," Brown said of earlier releases.

Data Dictionary/Solution Release 4.0 also includes easier access to other vendors' software, including IBM's Query Management Facility (QMF), which is used to work within IBM's repository environment. Brown said users can run QMF sessions from the Brownstone environment without getting bogged down by QMF procedures.

The Brownstone software will also provide the ability to incorporate data from IBM's IMS database and Knowledgeware, Inc.'s Information Engineering Workbench. Release 4.0 can be licensed for $60,000.

DB2 utility comes to U.S.

BY ROSEMARY HAMILTON
CW STAFF

Tadiran Information Systems in Tel Aviv is introducing an IBM DB2 utility designed to improve job scheduling for the U.S. market.

DB2 On Schedule is based on three key functions. The company said the product monitors jobs and then provides fixes for problems so users do not have to do complex programming to resolve issues.

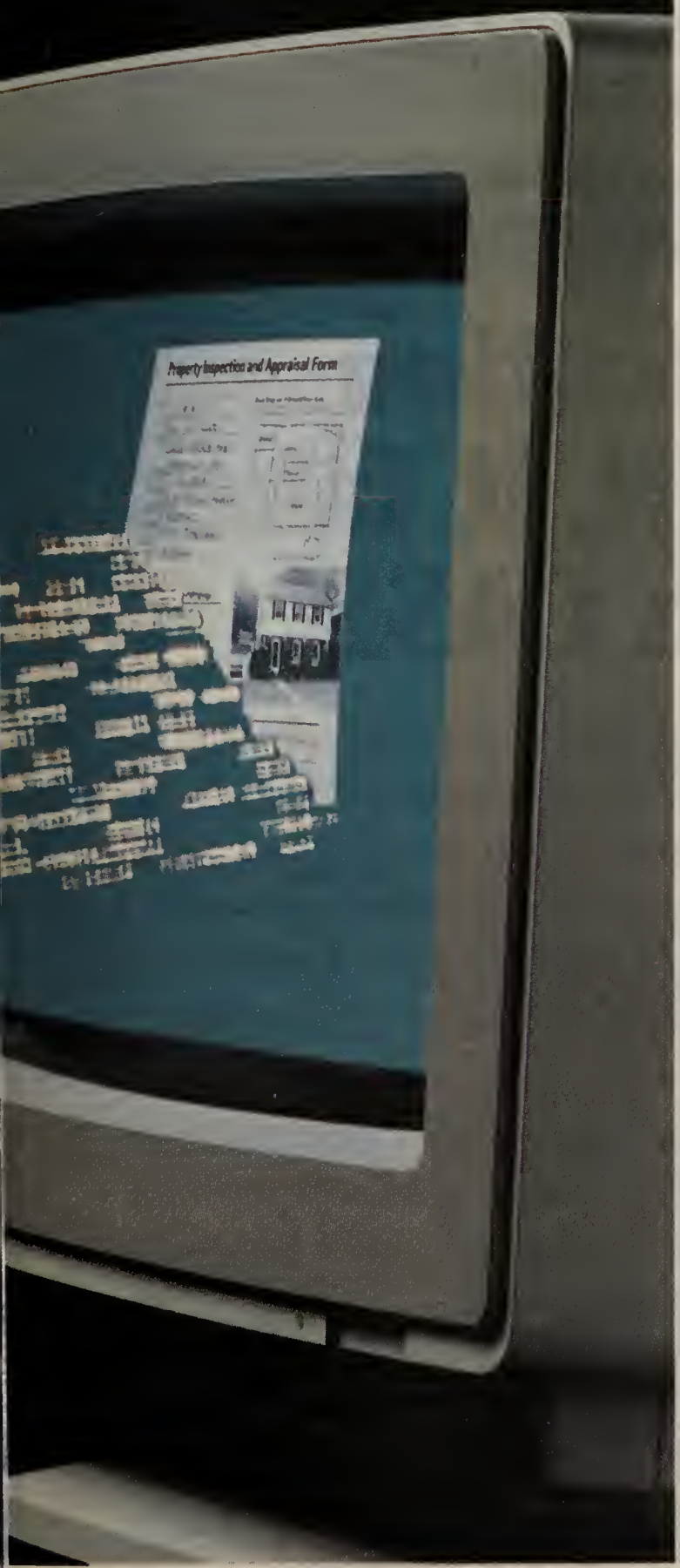
First, the software was designed to monitor both batch and DB2 jobs and ensure they are running on schedule. The software calculates when jobs should be completed and then alerts an operator when a job is falling behind the determined time limit.

Second, the software provides a restart facility to address programs that fail. The company said the software will enable users to restart jobs at the time of failure rather than rerun an entire job.

Third, the software offers program abend procedures to get bigger failures back on track. This feature is intended to assist "in times of crisis," a company official said. It enables users to move a failed program into a wait state, fix whatever problems have occurred and then restart the program.

The software, which the company has been selling in Israel, will be available for a license fee of $30,000.

he paper out of paperwork.



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NEW DEALS

Bath Iron Works buys CAD/CAM

Computervision, a Prime Computer, Inc. Company, announced that **Bath Iron Works** in Bath, Maine, purchased 60 computer-aided design and manufacturing systems worth a reported $5.4 million. The company will use the systems for design modifications to the Arleigh Burke-class Aegis guided missile destroyers for the U.S. Navy.

Data Solutions Co., a division of Data General Corp., has signed a five-year data processing service agreement with **Epic Healthcare Group** in Dallas. Under the terms of the contract, Data Solutions will assume responsibility for Epic's data operations. The agreement includes data communications network management and hardware technical and maintenance support. The contract is expected to reach an estimated $10 million.

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NEW PRODUCTS — SOFTWARE

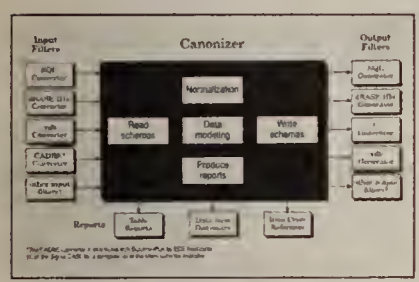
Computer-aided software engineering

Andersen Consulting has announced a computer-aided software engineering (CASE) product for Digital Equipment Corp.'s Cohesion software development environment.

Install/1 for VAX/VMS Version 2.0 — part of Andersen's Foundation life cycle CASE application development environment — generates complete Dectp transaction processing applications using DEC's Application Control Management System. The product supports the Cohesion integration framework, Cohesion standards and Cohesion tools such as Vaxset.

Pricing ranges from $9,000 to $372,000.

Andersen Consulting
69 West Washington
Chicago, Ill. 60602
(312) 580-0069



Six Sigma Case's Canonizer *assists database engineers*

Six Sigma Case, Inc.'s Canonizer, a recently announced computer-aided software engineering tool, features several input and output filters designed to assist database engineers in converting database models from one environment to another.

The product's input filters enable designers to load various data into the Canonizer, model it, normalize or denormalize it and then generate output formats.

The input and output filters have begun shipping and are priced between $145 and $445 apiece. Canonizer is priced between $895 and $2,995, depending on platform.

Six Sigma Case
13456 SE 27th Place
Bellevue, Wash. 98005
(206) 643-6911

Development tools

Microtec Research, Inc. has announced a set of reusable C++ class libraries designed to facilitate objected-oriented application development.

Capsule comprises C++ classes delivered as AT&T Version 2.1 C++ source modules and includes tools for neophyte and experienced object-oriented programmers.

Capsule costs $495 per CPU.

Microtec Research
2350 Mission College Blvd.
Santa Clara, Calif. 95054
(408) 980-1300

Oakland Group, Inc. has released Version 3.2 of its C-scape Interface Management System, a library of C routines for creating professional user interfaces.

The product enables users to write applications that include data entry, text editing, menus, Help, graphics compatibility and mouse support. The product includes a screen designer that allows users to prototype and simulate screens and convert them into C source code that runs under operating systems such as Unix, MS-DOS, VMS and OS/2.

Base pricing ranges from $499 to $2,499, depending on type of operating system.

Oakland Group
675 Massachusetts Ave.
Cambridge, Mass. 02139
(617) 491-7311

Compilers

Promula Development Corp. has announced an enhanced Fortran compiler designed for C-language-based platforms.

Promula.Fortran Version 3.0 can be used to translate Fortran code into portable C code. It allows Fortran applications to be integrated with other C-based applications or C runtime facilities, the vendor said.

Pricing ranges from $995 to $1,495, depending on the type of platform and the number of users.

Promula Development
3620 N. High St.
Columbus, Ohio 43214
(614) 263-5454

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NEW PRODUCTS — HARDWARE

Data storage

Contemporary Cybernetics Group has announced the CY-8200-SX, an 8mm tape backup system that can reportedly store more than 10G bytes of data on a single tape at 60M byte/min.

The product's fast file search feature enables users to search 1G byte of data in 17 seconds.

The company also introduced the CY-8500, an 8mm tape drive that stores up to 25G bytes on one tape. The device features transfer rates of up to 90M byte/min., according to the vendor.

Initial pricing for the CY-8200-SX and CY-8500 is $4,000 and $6,500, respectively.

Contemporary Cybernetics Group
11846 Rock Landing
Newport News, Va. 23606
(804) 873-0900

Intelligent Interfaces, Inc. has introduced the Microram 340, a 4M-byte memory expansion board designed for Hewlett-Packard Co. 340 computers.

The board ($1,995) can be installed in an expansion slot in less than 15 minutes and can be used during Unix, Pascal and Basic applications, the vendor said.

Intelligent Interfaces
P.O. Box 1486
Stone Mountain, Ga. 30086
(404) 381-9891

Decision Data, Inc. recently unveiled an 8mm cartridge tape drive that attaches to IBM Application System/400s via a small computer systems interface.

The Decision Data 7450 ($12,500) uses helical-scan technology to store up to 819 track/in. or 2.5G bytes of data. Features include a 256K-byte data buffer and a 246K byte/sec. data transfer rate. The stand-alone device also features a tape speed of 0.429 in./sec. and a data density of 43,200K byte/in.

Decision Data
One Progress Ave.
Horsham, Pa. 19044
(215) 956-6700

Standard Memories Corp. has announced a 4M-byte double-sided memory module designed for the Digital Equipment Corp. Vaxstation 3100 Model 76 and the Decstation 5100.

The Pincomm 76/51S memory upgrade ($995) fits into a memory socket on the Vaxstation 3100's motherboard. The product can be installed in pairs on a Decstation 5100, 8M bytes at a time. A 16M-byte version is also available.

Standard Memories
9 Whatney
Irvine, Calif. 92718
(714) 583-7500

I/O devices

Idea Courier, Inc. has introduced the Idea 13487 dot matrix printer and the Idea 13412-06 laser printer, both of which can be connected to an IBM System/34, 36 or 38 or an Application System/400 machine.

The Idea 13487 ($4,200) was designed for forms printing, bar coding and general business printing tasks.

The Idea 13412-06 ($3,395) operates at six page/min and enables users to access multiple data sources simultaneously, according to the vendor.

Idea Courier
P.O. Box 29039
Phoenix, Ariz. 85038
(602) 894-7000

Processors

Altos Computer Systems has introduced the Altos System 400 and 700, two Unix-based platforms designed for small and medium-size businesses.

The systems feature industry-standard open architecture and include an XT/AT bus.

System 400 includes a 20-MHz Intel Corp. 80386SX processor and built-in IBM Video Graphics Array support. System 700 is based on the Intel 80386 chip, includes a 32K-byte cache controller and supports up to 18 serial ports.

Pricing begins at $4,700 for the System 400 and at $7,600 for the System 700.

Altos Computer Systems
2641 Orchard Pkwy.
San Jose, Calif. 95134
(408) 946-6700

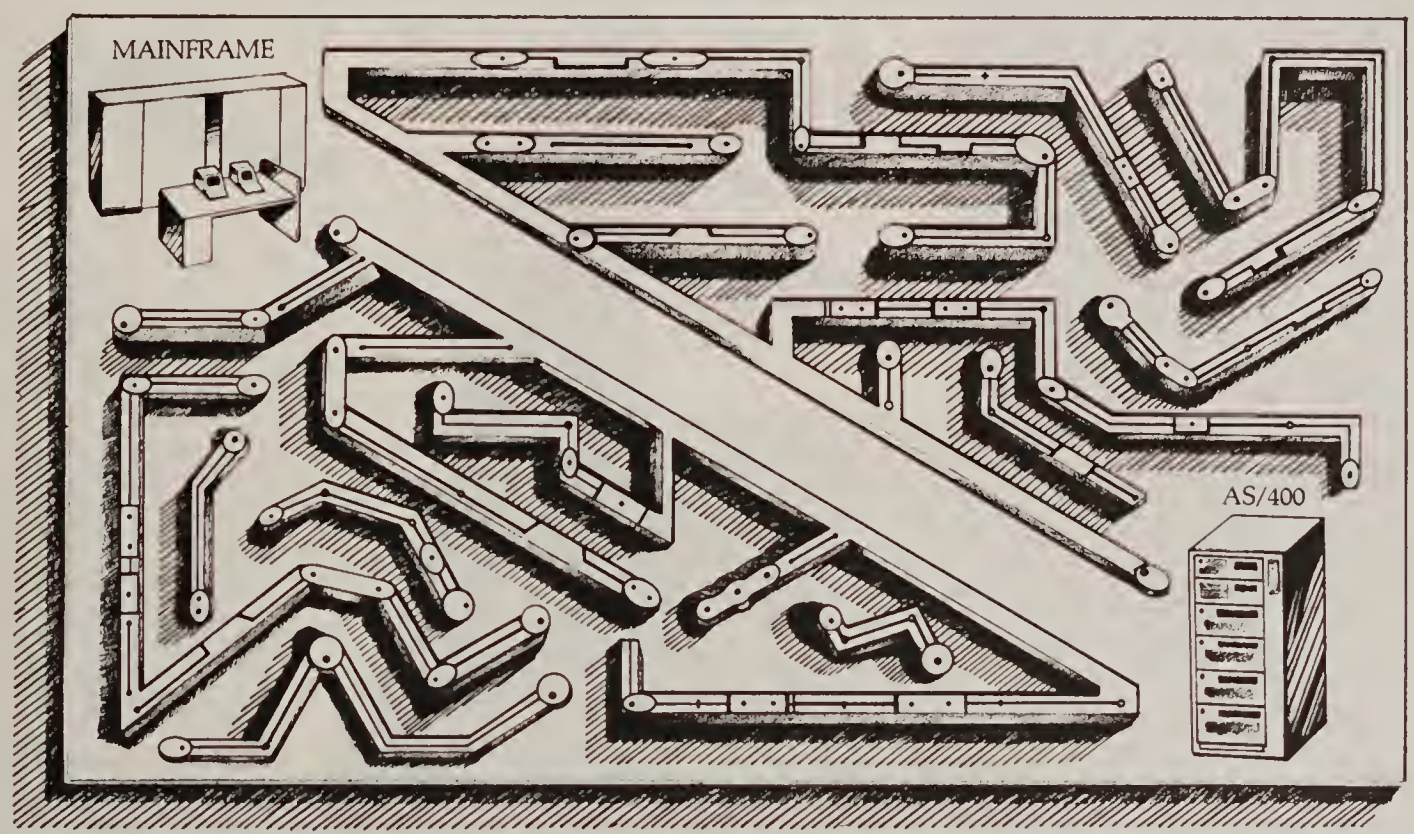
Solbourne Computer, Inc. has announced its Series 5E/800I of network servers that were designed for multiuser and client/server environments.

The deskside configurations support up to four CPUs and incorporate a Cypress Semiconductor Corp. CYC7601 40-MHz microprocessor and a Texas Instruments, Inc. 602A 40-MHz floating-point controller.

The products can be configured with up to 640M bytes of random-access memory and more than 20G bytes of Intelligent Peripheral Interface storage.

The series is scheduled to begin shipping next month. Pricing ranges from $74,900 to $450,590, depending on type of configuration.

Solbourne Computer
1900 Pike Road
Longmont, Colo. 80501
(303) 772-3400



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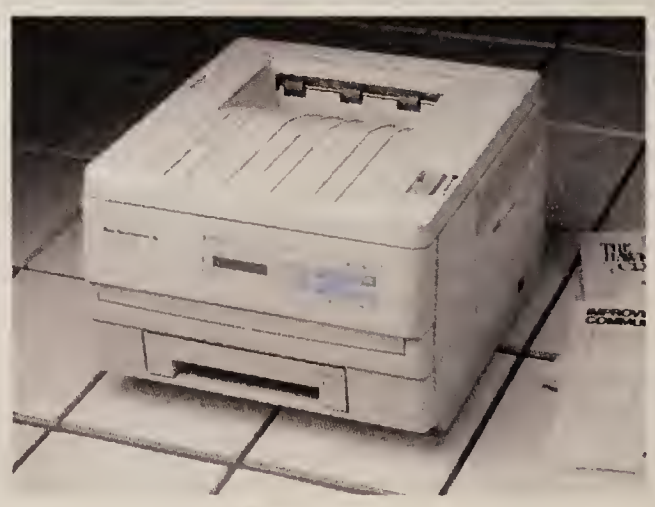

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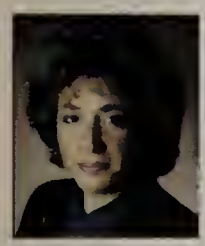
COMMENTARY

Rebecca Bailin

No one is laughing



What if (as they used to say in Hewlett-Packard ads) you came across a comedian who had written some fabulous stuff — observant and hard-hitting and so funny that just reading it made you laugh out loud? And what if, in great anticipation, you went to see him perform, but he mumbled and looked at the floor and had awful timing and was, in a word, a flop? What's more, what if this comedian was so sure of his talent that he refused to sell the material to someone who could deliver it well?

Is it comedy? Not if the audience isn't laughing.

This brings me to Geoworks' Ensemble and all the weeping and braying going on in the press about what a great product this graphical user interface is and how it's everything that Microsoft's Windows 3.0 should have been, but wasn't and never will be. I will not argue the technical merits of the product; I have no doubt that it is a superlative beast worthy of worship.

What I find irritatingly naive, however, is the implication that technical merit in and of itself constitutes a "good" product, a product of value. This in-

Continued on page 46

Project management tries anew

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

Were project management software to label any year its own, you might expect it to be this year, with a recession, a war and a credit crunch that is rapidly spreading across all sectors of society.

Computer Associates International, Inc. sees a window of opportunity in these fiscally tight times for this struggling market niche. Marketing manager Joel Lockwood predicted the spate of hiring freezes and budget cuts might produce a second wave of interest in project management software as, more than ever, users seek tools to better optimize limited resources.

CA is hoping that its revamped CA-Superproject 2.0 for DOS, which was released in November, is just the ticket to further entice users. Prior to its release, Lockwood said, CA undertook a series of surveys to determine why users shunned project management software.

The company came up with a list of five areas in which users found the genre lacking: ease of use, graphics, real-world functionality, multiplatform support and open architecture. CA-Superproject 2.0 is supposed to address these shortcomings.

Users contacted last week seconded CA's list of shortcomings, adding two more: price and network compatibility. However, there was virtually no support for the recession pitch. In fact, as noted by Dave Evans, vice president of information systems at J. C. Penney Co. in Dallas, "when times are really tough, no one is going to take the time to learn how to do anything new. They'll just try to do the old stuff as quickly and cheaply as possible."

As for the concept of project

Continued on page 48

Project leader

Symantec's Timeline holds a more than 3-to-1 lead over the nearest competitor in the personal computer project management software field

Top 6 U.S. PC project management shipments (1989)

Rank	Vendor	Product	Units sold	Market share
1	Symantec	Timeline	38,500	38.4%
2	Applied Business Tech.	Project Workbench	12,750	12.7%
3	Software Publishing	Harvard Project	12,000	12.0%
4	Microsoft	Microsoft Project	8,500	8.5%
5	Micro Planning	Instaplan	7,700	7.7%
6	Computer Associates	Superproject Expert	6,000	6.0%

Source: International Data Corp. CW Chart: Paul Mock

Lotus' Improv makes its move on the Next platform

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Lotus Development Corp. recently shipped Improv, its spreadsheet for Next, Inc.'s Next computer. Until March 31, Improv will be provided free to buyers of either Next's Motorola, Inc. 68040-based computers or its 68040 upgrade kit.

Improv marks Lotus' first departure from its policy of backward compatibility with 1-2-3 commands. It also provides a break from spreadsheet tradition in that it combines standard metaphors, such as rows and columns, with what Lotus and some users claim are breakthrough features — dynamic spreadsheet views, plain English formulas and presentation graphics that incorporate data, text, images and sound.

Improv enables users to quickly reformat the spreadsheet by creating multiple views of the same spreadsheet without rekeying the information. With Improv's dynamic views feature, data can be arranged to compare and gain greater insight into otherwise hidden data relationships, expanded to show more detail, hidden or grouped for clarity and formatted for presentation needs. Changes made in one view are automatically carried through related views.

Users can also name data cells and formulas using English words instead of letters and numbers.

Boost for Next

Lotus and Next claim that Improv has helped drive customer interest in Next computers. Two early Improv users said that while they went to the Next platform first, Improv has allowed them to continue with, and get more out of, the Next machines.

"I love Improv," said 1-2-3 user Eric Spahr, a vice president at Shearson Lehman Brothers, Inc. He is convinced Lotus has broken new ground. "I need a spreadsheet that allows me to build models for forecasting and accounting to restructure my data in any way I want. Improv enables me to do this quickly and easily, and the result is a spreadsheet my traders and customers can understand."

Spahr and six traders are in the process of switching to Improv. They have been using the beta-test version, which had some crashing problems, but Spahr said he has confidence the "real" product will work fine.

Spahr said the key to Improv is that it allows him to more easily do things he was reluctant to try before because of the time in-

Continued on page 48

It's Time ...

To Attend the 1991 Micro Focus Users Conference

May 13-16, Orlando, Florida

If you develop applications with Micro Focus COBOL products you can't afford to miss the Third Annual Micro Focus Users Conference. This year's Conference offers a record number of sessions and includes something for everyone:

MIS Managers will learn how PC-based programming can provide additional productivity while leveraging current investments in sessions that examine:

- *Micro Focus Workbench - Making The Financial Case*
- *Strategies for Implementing Programmer Workstations*
- *COBOL in the 90's, including Object Oriented COBOL*

Enterprise Application Programmers will learn how PC-based application development can save time and money in sessions that include:

- *Micro Focus CICS and IMS Options for Workbench*
- *Mainframe Compatibility - Enhancements and Issues*
- *MF 370 Assembler - An Overview*

PC Programmers will be shown the newest Micro Focus tools and technologies in sessions that include:

- *The User Interface Solution*
- *File Handling - The Technical Details*
- *COBOL - The Database Connection*

UNIX Application Developers will see how COBOL and open systems can be an efficient combination in sessions that include:

- *Mixed Language Application Development Under UNIX*
- *Writing Portable Applications*

These are just a few of the 50+ technical sessions scheduled for this year's Conference. But the Micro Focus Users Conference is more than three days of seminars; it's a unique opportunity for developers to meet the Micro Focus technical and support staffs and share solutions with other users through the Conference's Special Interest Groups.

The Micro Focus Users Conference is ***the*** forum for Micro Focus COBOL users ... Consider how your company could benefit from attending this year ... ***And Don't Miss It!***

For more information or to register, call: 415-856-9817 and ask for the Users Conference Desk.

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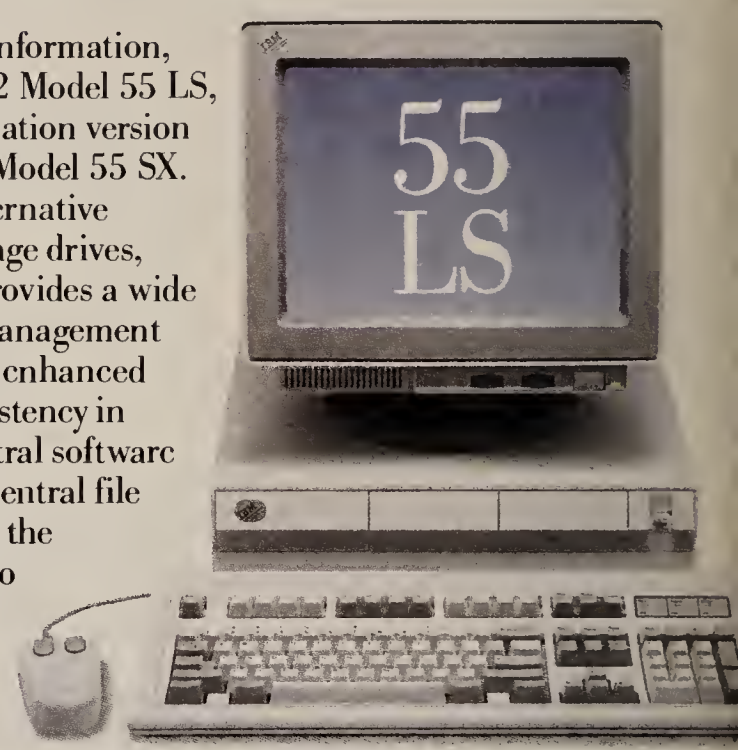
At the heart of IBM networking are the members of the Personal System/2® family that act as high-performance LAN servers. The PS/2® Model 95 XP 486, IBM's sophisticated new 486™ computer, was especially designed to optimize network performance. The Model 95 features an Intel 33 MHz 486 processor or a 25 MHz 486 processor that's easily upgraded to 33 MHz, which quickens the pace of your LAN's operations. For your network's storage, not only are the Model 95's SCSI hard files lightning-quick, but the overall capacity is truly impressive—up to 1.6 gigabytes internally, and up to 8.96GB or more with IBM PS/2 External Enclosures. IBM also offers highly efficient, lower-cost server alternatives with the PS/2 Models 80 386 and 65 SX. All of IBM's PS/2 LAN servers feature the Micro Channel™ architecture, with its 32-bit data path and bus-mastering capabilities. The Micro Channel busmaster adapters allow you to expand your network's capabilities by adding multiple processors—like adding "computers" to your computer. It all amounts to highly reliable and powerful managers that inspire the same kind of performance from the rest of your network.

An Efficient Way To Bridle Your Data.

Whatever your needs may be, IBM has PS/2s that can serve as excellent client stations. And if you want to keep a tight rein on your network's information, IBM offers the PS/2 Model 55 LS, a medialess LAN station version of the best-selling Model 55 SX. A cost-efficient alternative to models with storage drives, the Model 55 LS provides a wide array of effective management controls, including enhanced data security, consistency in software levels, central software maintenance and central file backup. Not only is the Model 55 LS easy to hook up (it comes standard with a Token-Ring Network or Ethernet adapter), but should you need to modify your system, it's easy to upgrade with diskette and file storage devices.



A New Breed Of Software.

Software that hits the ground running—that's our powerful new OS/2® V. 1.3, a high-performance, low-cost software package that supports both DOS and OS/2 clients on either a Token-Ring or Ethernet Network. Both the new OS/2 Extended Edition V. 1.3 and LAN Server V. 1.3 create an environment that delivers improved

to advanced IBM leads the way.

performance, less memory requirements, fewer DASD requirements and support for Adobe Type Manager™ fonts. And with support for 128 DOS requesters, LAN Server V. 1.3 can provide significant cost benefits for DOS network users. Compatibilities between IBM DOS LAN requester and the current version of Windows® 3.0 (LAN Manager 2.0 enhanced) have also been added, capping off the many ways IBM gives you greater flexibility in the LAN environment.

Printing That's The Best In The Field.

For a great finish to any project, IBM offers a full range of printers for client stations, as well as the speedy, large-capacity IBM LaserPrinter, an efficient printing station with immensely attractive LAN benefits. With a high-duty cycle and fewer parts for fewer breakdowns, it offers extremely reliable printing while still boasting a 10-ppm printing speed. The optional paper bins allow for more efficient collation, so there's no need to visit and rearrange the printing station prior to the particular job. You can also easily and inexpensively upgrade to Adobe PostScript.® It all adds up to a range of complete, reliable printing solutions that can handle the kind of workload that any network, large or small, can generate.

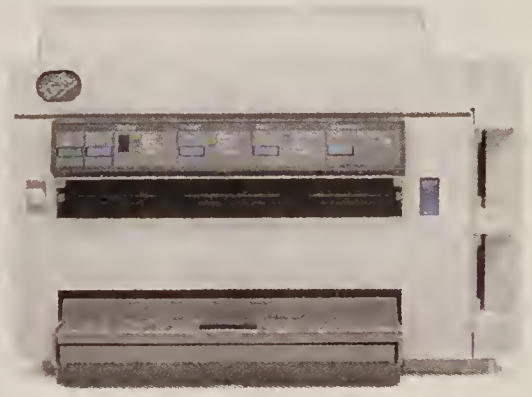
Step Up The Pace With Token-Ring Network.

To optimize the link between your LAN server and client stations, you need a hardware connection that gives you access to departmental and company data, as well as communication with your co-workers—in other words, you need access to a winner's circle: the IBM Token-Ring Network, the winner four years running of the *PC World Magazine* World Class Award. It's a reliable and flexible networking solution, one of the only connections with a data transfer rate of up to 16MB per second.

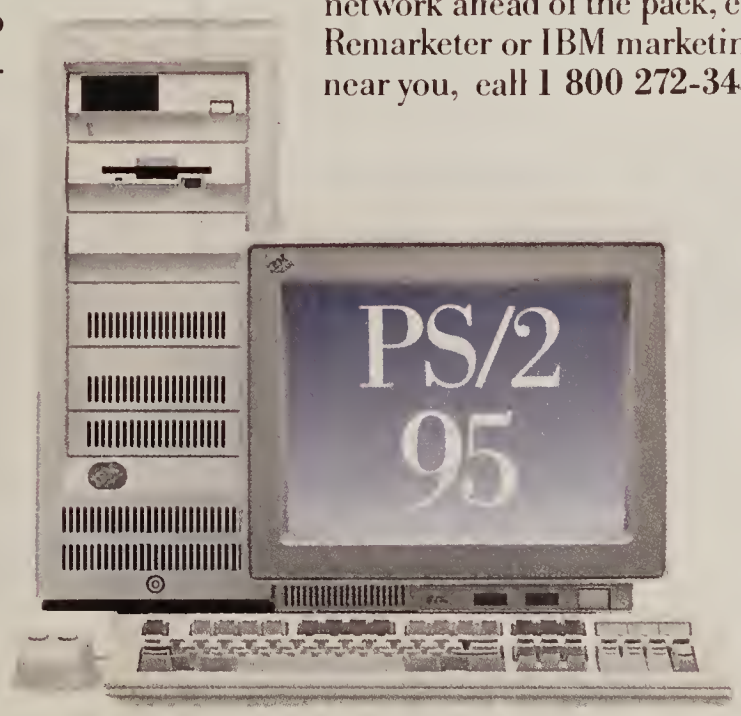
You can also diagnose, isolate and correct problems in one section of your LAN without affecting the rest of your network. A system you can build on, IBM Token-Ring Network provides a reliable connection that's as strong as your need to keep in constant touch with the people and information around you.

Communicate With Horses Of A Different Color.

Of course, IBM provides you with several ways not only to connect your PS/2 LAN to a multitude of mid-range and mainframe systems, but also to communicate with non-IBM systems as well. To conduct transactions such as hotel reservations, car rental and credit card authorization, an IBM communications adapter such as the IBM ARTIC Portmaster Adapter/A busmaster card, with the proper communciations software, can link your PS/2 with other companies' computers. With an Ethernet adapter, you can also connect to most Ethernet LANs. The integrated communications options of IBM OS/2 Extended Edition software can also allow your PS/2 to send mail, transfer files and access applications on other systems concurrently. So it's easy to benefit from the strengths of an IBM network while still having access to the rest of the computing world.



With the many components that constitute a Local Area Network, it's plain to see why a LAN is only as strong as its weakest link. That's why the IBM total LAN solution—LAN servers, workstations, networking software, printing stations and Token-Ring Network—is simply without peer: because there are no weak links. To find out how IBM can keep your network ahead of the pack, contact your IBM Authorized Remarketer or IBM marketing representative. For a remarketer near you, call 1 800 272-3438.



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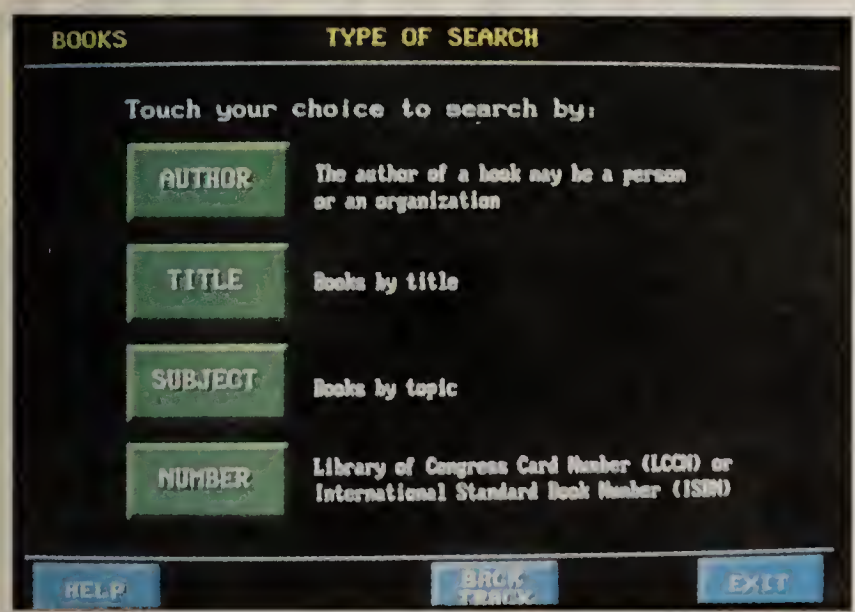
The newspaper for information systems management

Library users get in touch with Access

ON SITE

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — This summer, the Library of Congress will provide the American public with an ultrafriendly window into its vast collection of nearly 16 million cataloged books.



Access *will give users a touch-screen interface for searching the Library of Congress' mainframe-based card catalog*

The library's information technology staff is busy working on a network of 18 workstations that will give users a touch-screen interface for searching the library's mainframe-based card catalog.

The front-end system, named Access, will be unveiled when renovations to the library's reading rooms are completed, perhaps in June. "We could have come up with some high-tech acronym for the name of this project, but [the word] Access says it all," said Maryle Ashley, head of bibliographic systems in the systems analysis office.

In essence, the Access project resulted from the shared vision of Librarian of Congress James H. Billington and Herbert S. Becker, director of information technology services, to "make computers less of a barrier" to using the library's resources, Becker said.

It now requires considerable training for users to learn the arcane commands needed to search the library's two bibliographic databases, which were designed in the early 1970s. Furthermore, the library has a shortage of reference librarians, who "spend a lot of time explaining the computer system instead of working on more advanced research strategies," Becker said.

However, it will be years before the library can accomplish a complete overhaul of its mainframe databases, which constitute millions of lines of assembler code. So Becker turned to a product called Easel, from Easel Corp. in Woburn, Mass., that provided a software development tool kit for enhancing existing applications with graphical user interfaces.

In this case, when a user touches a box on the screen, the Access software generates data strings that emulate the mainframe keyboard commands to search the two databases. With Access, the only time the user touches a keyboard is to type in the name of the author, title or subject to be searched, Ashley said.

The system will use IBM Personal System/2 Model 70 microcomputers, along with a local-area network and gateway to the mainframes. The information systems staff is now working to improve the response time and reliability of the system before its unveiling, Ashley said.

However, most of the effort has gone into making the user interface as simple as possible to use. Prototypes of the system were developed with the help of experts in human-computer interaction at the University of Maryland and Cognetics Corp. in Princeton Junction, N.J., and have been critiqued by library staffers.

A continuing process

During the last few months, the general public has been able to use three prototype Access terminals in one of the library's reading rooms and then fill out questionnaires evaluating the system.

Throughout this fine-tuning process, Ashley said, the development team has remained focused on the system's "high concept," which is to allow patrons to access files without needing training or assistance from the reference librarians. Fancy features that might jeopardize the simplicity of that mission have been deferred to later phases, she said.

The existing dumb terminals will remain for those expert researchers who know the system's quirks and commands. Initially, there will be 18 Access workstations and about 60 older terminals, but, Becker said, it is possible that the ratio "could go the other way" in the future.

Someday, the Access system could be expanded to cover the library's collections of foreign-language texts, photographs, music, maps and films, as well as allow patrons to actually request an item via a touch screen instead of filling out a call slip.

The experience of developing Access and grappling with the issues of human-computer interaction will also help with other IS projects, including the overhaul of the mainframe databases, Becker said.

Rollouts designed to let PCs, workstations act like Macs

BY JAMES DALY
CW STAFF

The headache of integrating multiple operating systems was lessened recently with the rollout of a series of hardware and software offerings that reportedly give personal computers and workstations the ability to functionally emulate the Apple Computer, Inc. Macintosh.

Cupertino, Calif.-based Hydra Systems, Inc. has announced the Hydra One, which reportedly allows IBM Personal Computers and compatibles to run Macintosh software. The package includes a PC add-in board, proprietary software interface connectors and an RS-422 Appletalk-compatible connector.

Hydra President Wendall Brown said PCs can use Hydra One to provide the Macintosh display. "Primary design consideration focused on allowing the PCs' existing peripherals, such as the floppy, hard disk, modem and mouse, to be directly used by Macintosh software," Brown said.

Installation requires plugging in the PC card and loading the installation software with basic configuration menus. The user adds random-access memory or read-only memory (ROM) separately, Brown added. The $995 Hydra One also includes software that allows file transfer between PC and Macintosh applications and text conversion.

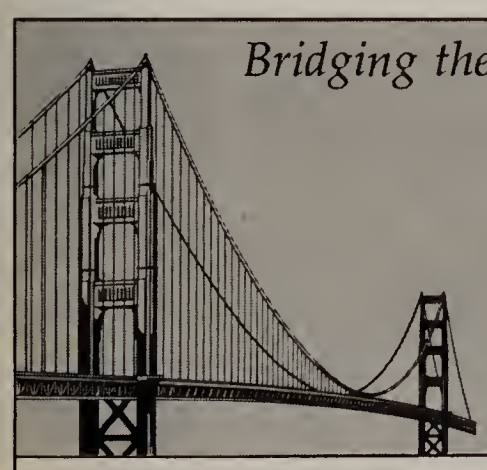
On the workstation side, Dallas-based RDI Computer Corp. recently announced Companion, which emulates the Macintosh operating system on any system using the Scalable Processor Architecture (Sparc) from Sun Microsystems, Inc. The package allows users to migrate to any Sparc-based workstation while maintaining their investment in Macintosh software, RDI President Rick Schrameck said.

Companion runs under the Sun View or Open Windows graphical user interface and emulates the Motorola, Inc. 68000 processor, producing functions similar to a Macintosh SE or Classic. The system requires a Macintosh Classic ROM in a Sparc Sbus, Schrameck added. Beginning this month, Companion will be also available as an add-on for RDI's Brite Lite Sparc-based laptop.

Companion will retail for $1,695 including an Sbus card. A second version without the Sbus card will be available next month for $895.

Nutek Computers, Inc., also based in Cupertino, recently announced a hardware and software strategy that it claimed will allow manufacturers to legally produce PCs that are functionally indistinguishable from the Macintosh.

Bridging the Micro-to-Mainframe Editing Gap



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SPF/2 takes advantage of OS/2's powerful features. It uses virtual memory to handle very large files. The HPFS (High Performance File System) long file names are supported. And **SPF/2** uses OS/2's REXX for its macro language—75 mainframe-compatible ISREDIT edit sub-commands provide the interface.

SPF/2's 3270 compatibility also contributes to your ease-of-use on the PC. **SPF/2** processes keystrokes in the same way as the OS/2 Extended Edition 3270 emulator, including NEW-LINE and ENTER. **SPF/2** even displays the same status indicators.

You will also enjoy features not available on the mainframe. For example, **SPF/2** supports 48 PF keys, automatically adapts to the number of lines in the various OS/2 video modes (full-screen or windowed), and scrolls the file as you move the cursor. And, you will appreciate OS/2's virtually instantaneous response time.

Try **SPF/2** for yourself with a free real-working-code demo disk—just like the production version, except it doesn't save your file changes to disk. Call the toll-free, 24-hour Demo Request Hot Line at **(800) 648-6700** and ask for **SPF/2** Demo Disk #CW02181.

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The EPL-7500 handles paper as well as it handles text and graphics. A 250-sheet tray comes standard, a second is optional. Also standard are serial, parallel and AppleTalk® interfaces, allowing the printer to work smoothly in both PC and Macintosh® environments. For even greater versatility, HP® LaserJet® Series II emulation is included.

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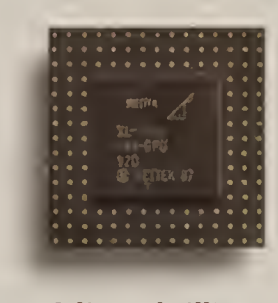

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Coors brews up sales strategy

A laptop project is helping one beer company increase its sales efforts

ON SITE

BY MICHAEL FITZGERALD
CW STAFF

GOLDEN, Colo. — Brewing beer is still based on methods developed only slightly after civilization began.

However, in the viciously competitive U.S. beer market, where total consumption in 1990 was up for the first time in three years, Coors Brewing Co. has turned to thoroughly modern technology to post increases in both sales and market share.

All 170 Coors area sales managers make their calls with Compaq Computer Corp. LTE 286s and SLTs, with Wordperfect Corp.'s Wordperfect Version 5.1, Lotus Development Corp.'s 1-2-3 Version 2.2 and Software Publishing Corp.'s Harvard Graphics Version 2.12 on the hard drives. They also use Coorslink, an internally developed communications package that is used by all 650 Coors distributors nationwide.

Addressing a need

Robert Peterson, director of sales and marketing information systems at Coors, said top management drove the laptop project, which began in March 1990, to reduce the amount of time field representatives were spending pulling together presentations and to improve their communication with headquarters.

"We were in better communication with [our wholesalers] than with our own sales force," said Frances Morgan, manager of sales communications at Coors. "So when laptop technology came out and prices came down, we got into it."

Manager Donna Whitley said the project has been "much more successful than we had anticipated." Whitley said the field representatives, who were largely unfamiliar with computer technology, became aggressive users: "There was a lot of peer pressure to become the best on the computer."

Whitley said fewer than 10% of Coors' field representatives continue to have difficulty with the programs on the machines.

The presentations are a key part of a field representative's job. Whitley said Coors believes its represenatives now "go in with a much more effective presentation than they could two years ago," and the company has saved money on prepared presentations. Coors simply provides its representatives with basic templates and instructs them on what makes a good presentation.

Morgan said a Coors analysis of the portable program showed that after only five months, representatives were each saving 2½ hours per week. Each of the 35 area managers now saves between $800 and $2,000 per year on presentations. The representatives said they saved money in other ways: One said he avoided $300 in Federal Express Corp. charges one week because he was able to get information through his portable.

However, Morgan said, cost savings were icing on the cake, as far as Coors was concerned.

"We never sold it as something that would pay for itself," she said. "It was where we knew we'd have to be in five years, for productivity and use of information."

Coors is brewing up two new directions for its laptop project. On the one hand, it will focus on presentation skills development for all its representatives. In addition, the company is looking to take advantage of the technology involved by creating the ability for its field representatives to do limited queries for information.

Coors' No. 1 project for 1991 is to give its field representatives more access to the data on its IBM 3090 mainframe. Employees in Golden use the IBM/Metaphor data interpretation system base extensively, and Peterson aims to have a project in pilot by the third quarter that will give field representatives an interface to do the same.

Analysts contacted said that this sort of two-way communication was less common than one might expect, and they indicated that Coors may be on the front end of a trend.

Federal program plows IS efforts into snow removal

BY CAROL HILDEBRAND
CW STAFF

Bing Crosby had it all wrong. Winter Wonderland? Tell that to commuters trying to navigate roads corrugated with snow and slush. But according to the National Research Council, cleaning up Jack Frost's revenge could be done more cheaply, quickly and accurately by using the right technological tools.

A three-year project conducted by the council's Strategic Highway Research Program (SHRP) aims to present guidelines to tie together currently available technologies to better predict road maintenance needs through a cohesive system offering instant, real-time data on road and weather conditions. State and local highway maintenance agencies could then consult the report for efficient system configurations and recommendations to set up such a system.

Three specific technologies are being targeted, according to Karen Smith, the program's director of organizational relations. They are the following:

- Atmospheric and pavement sensors that measure surface temperature and weather conditions as well as the presence of snow, water or ice on the road.
- The Nexrad weather monitoring network, which is part of a major revamping project by the National Weather Service.
- "Thermal mapping," which is an infrared scanner attached to a vehicle that can pinpoint warm or cold spots on a road.

The idea is for an agency to feed the data from the three technologies into a CPU, which can then analyze it. When maintenance workers need to know conditions on a stretch of road, they can call them up. "They'll then have real-time information to decide where and when to put the crews out," Smith said.

Arnie Feinberg/The Picture Cube

The National Research Council *is incorporating computer technology to improve snow removal efforts*

Although the costs of setting up a system would be borne by the state, fiscal paybacks would kick in as road crew efficiency increased. A system would cost about $35,000 per site, with each site made up of four sensors, a weather station and a computer.

"We've already seen big paybacks from it. We feel that we've easily recovered our investment in the system," said David Vieth, chief of program and equipment management at Wisconsin's Highway Maintenance Office. Wisconsin has the largest roadway monitoring system in the country. Vieth said his office saves about $75,000 per major storm statewide. With an average of 40 major storms per year, that adds up.

Gordon Bell, maintenance superintendent at the Colorado Department of Highway's Denver Metropolitan District, has had a network of sensors in place for three years. The sensors are connected through remote processing units to an IBM Personal Computer AT.

Field personnel can connect at home via modem to take a look at the data. "For example, you can tell if a chemical has been used on the road surface and how much, so you can tell if someone has been out and treated that road already," Bell said.

Bell said he is hoping to use the study to deploy his sensors more efficiently. "When we first put this stuff in, we didn't know whether the sensors were in the right location — whether they should be in the wheel tracks or the wheel ruts, for example."

The study, although helpful, may be a little too late, Vieth said. Wisconsin is looking to expand its system, but "I'm not sure if we're going to be able to wait for the SHRC to get done with their work," he said. "But we certainly have some mutual interest here."

Bailin

FROM PAGE 39

dustry must wake up to the fact that there is no such thing as value that is purely technical. A "good" product is a product that is technically excellent but is also well-marketed, well-supported, well-documented and brought to market at the proper time. And, I dare add, a "good" product is also from a company with sound financial management, an excellent human resources record and all the facets that make up a quality business. Because — hang on, folks — software is actually a business.

I don't want to detract from the genius of this industry's creative outlaws, but as software (especially PC software) becomes more critical to complex organizations, value becomes more complex as well. Value is not only that the software displays speed and derring-do but also that it can live, breathe and contribute in the customer's long-term, multilevel, business-critical environment.

It's time to get mature and realize that customers care about their needs, not their vendors' needs. Businessmen have lots of reasons for product choices besides technology, and that doesn't make them stupid or inept. An information systems manager of a Fortune 100 company with thousands of PCs may admire the elegant design of Geoworks' product, but she needs an environment that has enough clout to attract leading applications and enough market weight to survive.

Marketing is not a "necessary evil" or "hype." It is part of what constitutes product value. Excellent marketing means coming to market in a timely manner, cutting the right deals, putting forth the right message and making the right alliances. It also means understanding the customer and directing technical development.

In these areas, Windows 3.0 and the Microsoft marketing machine leave most others in the dust. Windows 3.0 has been rightly criticized on a technical basis, but the sale of 2 million units to date indicates that for customers, value is more complex than pure technology.

Instead of bemoaning the fate of an "inept" market that is being fooled into accepting an inferior Windows 3.0 when a technically superior product exists, we should realize that it is the customer who defines value, not the vendor.

It's not just the joke, it's the delivery. If they're not laughing, it's not comedy.

Bailin is a principal at Kuvera Associates, a Redmond, Wash.-based consulting firm specializing in distributed computing.

Wingz trades strong graphics for compatibility

Technology Analysis — A roundup of expert opinion on new products. Summaries written by free-lancer Suzanne Weixel.

In porting Wingz 1.1 from Apple Computer, Inc.'s Macintosh, Informix Software, Inc. tries valiantly to answer the call for an object-oriented graphical user interface spreadsheet that runs under DOS, as well as Microsoft Corp.'s Windows 3.0. The result, reviewers at personal computer publications say, is a mixed bag — Wingz offers graphics and charting capability unlike anything seen on the PC before, but it lacks compatibility with basic spreadsheet precedents set by Lotus Development Corp.'s 1-2-3.

Performance: Each spreadsheet can consist of more than 32,000 rows and columns, and users can load multiple worksheets up to the limits of memory. Although slow compared with text-based products, for a graphics-based program, reviewers agree that Wingz is up to speed. It requires 2M bytes of random-access memory, however, reviewers suggests you will do better with at least 3M bytes.

One drawback is that the program pays so much attention to graphics that it sometimes comes up short performing basic spreadsheet tasks. For instance, Wingz can link cells only to an active file.

Compatibility: Wingz can read, but not write, Microsoft's Excel files. It can read and write Lotus' 1-2-3 files but not 1-2-3 macros, and it disregards the 1-2-3 function key assignments. However, it supports Dynamic Data Exchange and can use the Windows clipboard.

Graphics: Wingz offers various types of graphs rarely seen in PC packages, and graphs are customizable with users controlling visual features such as angle and perspective.

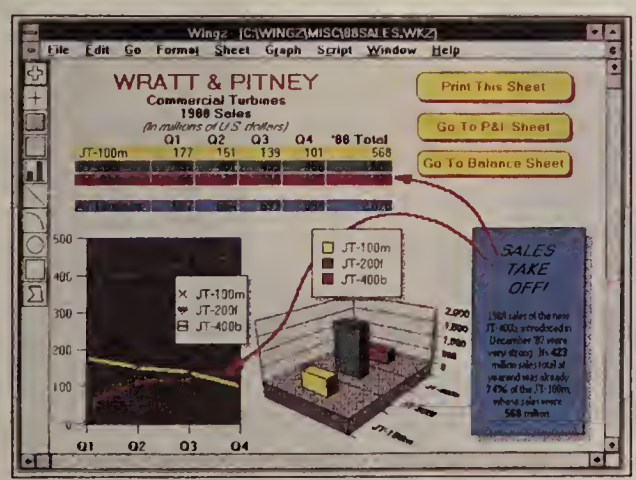
Output: Wingz produces publishing-quality presentations. It offers output options such as color, fill patterns and drop shadows.

Documentation: Wingz comes with three well-written paperback books. However, its on-line Help is not context-sensitive.

Ease of use: Although reviewers find that in some functions Wingz is intuitive, its lack of consistency is frustrating. For instance, *Byte* noted that certain functions, such as specifying links, cannot be performed with a mouse. On the other hand, *Infoworld* complained that several command actions can only be performed with a mouse.

Support: Telephone support is available. However, many of the support staff may be more accustomed to dealing with Macintosh users.

Value: Wingz runs under either Windows 3.0 or OS/2 (both versions come in the same box for the same price). The good news: For $599 you get a graphical, object-oriented package that takes advantage of the Windows environment. The bad news: Its inconsistent design may be frustrating.



Informix's Wingz *provides graphics unlike anything seen on the PC before*

Reviews Summary

Criteria	Infoworld 1/28/91	PC Week 12/31/90	Byte 11/90
Performance	Very good	Good	Performs admirably
Compatibility	Satisfactory	Needs improvement	Fits Windows environment effortlessly
Graphics	Very good	Good	Downright fun
Output	Excellent	Good	Nearly desktop publishing capability
Documentation	Good	NC	NC
Ease of use	Satisfactory	Good	Versatile but has annoying limitations
Support	Satisfactory	NC	NC
Value	Very good	Excellent choice	Puts Windows through its paces
Reviewer's score	6.8	The corporate jet of spreadsheets	Presentations soar but up-front work required

Numeric ratings are based on a weighted scale of 1 to 10 where 10 is best. NC: No comment. These are excerpts from reviews. Refer to actual articles for details.

RATINGS

What the experts say

• Users: Bob Didner, senior staff consultant, Dun & Bradstreet Corp., Basking Ridge, N.J. (*overall performance of product:* 9.5, *cost:* 9) "We originally chose Wingz for its graphing capabilities, then, we discovered its extraordinary applications development ability. Its object oriented capabilities are outstanding and its speed is very good for a graphics program," Didner said.

Bob Beaman, information center manager, Branch Banking & Trust Financial Corp., Wilson, N.C. (7, 9) ; Steve Jackson, manager of quality assurance, Zenographics, Inc., Irvine, Calif. (8, 7.5)

"Basically, a spreadsheet is a spreadsheet. Wingz has all the features we've come to expect in that capacity, and it is quite a bit more intuitive to use [than Excel], especially when it comes to making charts, when it seems very natural to use. Price-wise, it is in keeping with what you have to spend on a spreadsheet package," Jackson said.

• Analysts: Amy Wohl, Wohl Associates (*overall performance of product:* 8, *cost:* 8); Marshall Moseley, software analyst, Dataquest, Inc. (7, 8); David Cearley, program director, The Gartner Group (6.5, 7)

• Financials: David Bayer, software analyst, Montgomery Securities (*financial performance of company:* 2)

"Informix is a company under fire right now. It is in a tough position. Wingz for DOS is one of the reasons why. Even now that it is shipping, it is showing only modest sales. Although it does well under the company's customers, it has not done much in the way of attracting new customers," Bayer said.

Charles Phillips, analyst, Soundview Financial Group (3)

"They are not in danger of going out of business, but they must turn profitable again," Phillips said.

Alfred Tobia, Mabon Nugent (3)

"Their accounting policies have been very liberal. They have had aggressive revenue recognition policies," Tobia said.

"Certainly Informix is at the edge of the envelope right now. They are looking for ways to generate cash and still be profitable. Most of its growth, however, will come from its database products. Wingz is not really a factor in its financial picture. Wingz is important to Informix as a front end to its database, not as a stand-alone spreadsheet," said Bruce Lupatkin, senior technology analyst at Hambrecht & Quist, Inc.

Wingz 1.1

score: 66

Points (maximum)	Category
20 (30)	Published reviews
14 (20)	Analysts' ratings
12 (15)	Users' ratings
16 (20)	Cost evaluation
4 (15)	Vendor financials

(Maximum score: 100)

Informix responds

Comments from Rick Lucas, Wingz' program marketing manager

Compatibility: It is unrealistic to think you can have a graphics-based product be 100% compatible with a text-based product, and we didn't want to do it less than 100%. We support only SQL database engines. But we support SQL on different platforms so users can access a mainframe.

Ease of use: From a text-based perspective, there may be ease-of-use problems. We currently have a problem linking spreadsheets. Version 1.5, due out later this year, will feature point-and-click linking. It will also move away from the multitiered pull-down menus toward a top-down, dialog box approach. In Version 1.5, the interface will also be modified to assist users in revising worksheets.

Financials: We have taken steps that we believe are in the best interest of the company over the long term. For instance, we are voluntarily modifying the way we keep our books and report our financial situation. In the short term, such steps mean we may have to take a few hits.

NEXT WEEK

▶Microsoft Corp.'s Excel 3.0 mixes Windows presentation capability with strong analysis functions.

Methodology: *Published reviews: average of numeric scores from product reviews published by PC publications listed in reviews summary chart multiplied by three. All ratings are based on a 1-to-10 scale, where 10 is excellent. Analysts: average overall product ratings multiplied by 2. Users: average overall product ratings multiplied by 1.5. Cost: average cost to get product up and running ratings from both groups multiplied by 2. Financials: average of analysts' ratings of vendor financials and ability to support product from financial analysts multiplied by 1.5.*

Project

CONTINUED FROM PAGE 39

management itself, Mark Jankowski, director of systems development at Frito-Lay, Inc., also in Dallas, was even more blunt. "Project management software is a software product looking for an application."

Stephen Turner, a personal computer technology consultant to Chevron Canada Ltd., has used project management software, but he said he questions its usefulness in a software development shop.

"You can't really say 'this code will take six days to write,' " he said. What it will do is provide an outline to keep track of where things are, but other than that, Turner said, he is not sure it helps much. "I don't know that I put too much of a stake in it."

The only "real practical use" that Jankowski said he can see is if the technology were to come fully embedded in both the front end and the back end of a computer-aided software engineering tool set. However, as a stand-alone application, he likened it to trying to "kill an ant with a computer."

Risk of overkill

Most of the users interviewed cited the overkill factor. They agreed that many project management packages are so complex, they essentially make mountains out of molehills. Vendors have to readjust their sites for a mass market, the users said.

Even those users who come from an engineering background, which is where project management got its start, are not convinced that the current crop of packages meets the needs of business managers.

"I come from an engineering background, where you learn project management and do it on paper. Now, more senior managers are being asked to more effectively manage, and they are looking for a tool to help them do that," said Andrew Roehr, a systems consultant at the Bank of Boston Corp.

For project management to succeed among this class of users, Roehr said, it will have to find a happy medium between functionality and simplicity.

Both Roehr and Fred Winongrad, vice president of distributed systems at Merrill Lynch & Co. in New York, want a networked version. Winongrad wants a server application that is priced per simultaneous user.

"We talk about making sure people get task lists done and coordinated, and for that kind of thing, you need a network version," Winongrad said.

Infrequent users targeted

The situation will change during the course of 1991, said Gladys Francis, an analyst at Dataquest, Inc. Francis said she has seen some upcoming products that will target the manager who looks at the package once per week and who does not want to have to relearn the system each time.

Prices are falling to a more acceptable level, she said. Desktop package list prices run from $595 to $4,800, averaging $2,306 ($1,701 at street prices), according to a report from Framingham, Mass.-based International Data Corp. New offerings are priced in the $300 to $350 range, Francis said.

In addition, not all users are leery about project management software. It provides a measure of discipline that Lithonia Lighting, Inc. did not have before, said Jeffrey Kernan, vice president of information and management service. "Anything is better than where we were before," he noted.

Winongrad said he can "absolutely" tell the difference that project management software makes. "Part of the reason we are looking to manage our whole environment as a single strategy is because there is tremendous pressure to make do with less people," he said.

Improv

CONTINUED FROM PAGE 39

volved. For example, he uses Improv to build very large models that can be changed in any number of ways to satisfy different people.

Improv also makes the reclassification of categories effortless, painless and quick, he said. Another plus is the ability to build up or restrict model expansion or contraction in terms of complexity, Spahr said. "No other spreadsheet allows you to do all this," he added.

The lack of macros in Improv does not bother Spahr, but Windflower Gilbert, manager of quality assurance at Pencom Software, misses them. "In some cases, the formulas replace them, but in other cases, they don't," she said.

This is not to say Gilbert does not find the formulas helpful — she does, especially a self-correcting mode that not only points out where the error is in the formula but provides suggested solutions.

Gilbert also found that the lack of compatibility with traditional 1-2-3 commands made the move to Improv more difficult, but, she said, the switch was worth it for two reasons.

First, it made the Next computer, which was initially installed as a development system, more accessible to a wider range of users.

Second, she found Improv to be "conceptually much more powerful," in that users can view data in different ways with different categories and concepts. "It really expands on the rows and columns [metaphor]."

When we saw where computing was going, we made some Wyse Decisions.

Cable firm eyes basics

Systempro helps to automate core functions at Cox Cable

ON SITE

BY RICHARD PASTORE
CW STAFF

SAN DIEGO — CATV is by nature a high-technology animal. State-of-the-art, fault-tolerant systems process picture signals and control customer access to premium services. Yet basic functions such as cable installation and cost tracking are only just beginning to benefit from automation.

Cox Cable San Diego, Inc., the country's third-largest CATV company, began computerizing its own basic operations about one year ago. Its cost-tracking system, which combines custom coding with spreadsheet and database packages, has saved considerable time and improved accuracy over the manual methods it replaced.

The system, an approximately $75,000 investment in hardware and software, resides on an 18-node Novell, Inc. Netware 386 network served by a Compaq Computer Corp. Systempro. The application was part of the justification for buying the $30,000 Systempro, which also runs Microsoft Word for Windows application from Microsoft Corp., said Mark Olsen, systems analyst and designer of the cost-tracking program.

The network is separate from the Tandem Computers, Inc. fault-tolerant TXP superminicomputer that runs the signal processing and customer access functions within Cox's highly decentralized information systems group.

The cost-tracking system allows its 50 users to calculate return on investment and monitor costs and materials associated with cabling new housing developments and upgrading older installations.

For each new cabling project — there are 1,255 currently active — field inspectors visit the housing site and note materials needed for construction: miles of cable, conduits and telephone pole amplifiers.

These and other design elements are entered into the system, which crunches the numbers in a preconfigured Lotus Development Corp. 1-2-3 spreadsheet to determine a return on investment.

Once executives sign off on the project, the system dumps all pertinent project data — dates, materials and costs — into an Informix Software, Inc. Smart Data Manager Version 3.1 database. From there, warehouse staff members use it to print material requisitions and parts lists. Other users track the project's progress on-screen and print status reports as needed.

"It's really streamlined the process," said David Loveland, whose systems development group works with the 1-2-3 aspects of the system. He estimated at least a 50% time savings over manual rate-of-return calculation.

"It also provides more depth and detail of information," Loveland added. Manual calculations took into account only surface costs such as materials and labor. The automated system includes such back-end calculations as amortization based on a 12-year installation life span.

At Cox's warehouse, workers use the system as a guide for requisitioning parts for the construction contractors. Again, the benefits are time savings and improved accuracy.

"We are doing 5,000 transactions a week — a 30% increase — with the same number of people," said Skip Dye, inventory control/fleet manager.

Under the previous method, warehouse workers handwrote part numbers before pulling parts from the shelves. Numbers often got jumbled, and incorrect parts were pulled.

"Now when we key in a part number, the system will cross-check it for validity and give us a part description and price," Dye said.

Cuts confusion over costs

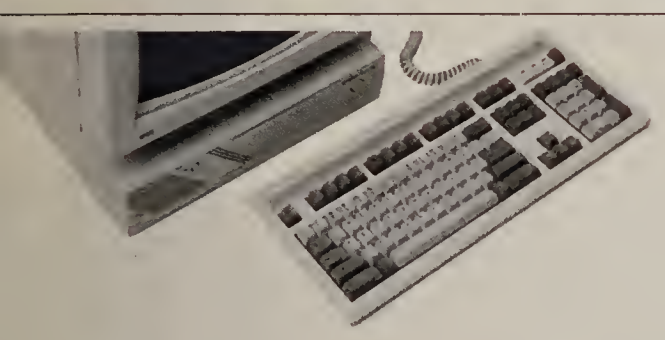
Real-time inventory reconciliation also reduces the chance for costly discrepancies to slip through. "By more efficient inventory management, we felt there would be very large but difficult-to-quantify savings [in missing material] that would pay back the system investment," Olsen said.

While the menu-based system has proved easy to learn and use even for computer novices, there is room for improvement, users said.

"We need to upgrade our terminals," Dye said. The three dedicated warehouse personal computers are "vintage, and the response time is not what we'd like," he added.

Olsen is also working on a program to allow the cost-tracking system to upload records of parts use to an IBM System/38, which holds the master parts inventory file and performs financial processing.

Currently, warehouse employees have to spend about three hours per day rekeying this data into the System/38. "It's kind of silly, so the next step is to develop an automatic link between the two," Olsen said.



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NEW PRODUCTS

Systems

Tandy Corp.'s Radio Shack Division has introduced an IBM Personal Computer AT-compatible, notebook-size business computer that includes a 16-MHz 80C286 microprocessor and IBM Video Graphics Array graphics.

The 2810 HD features 1M byte of memory that can be expanded to 5M bytes, an internal hard disk drive that features a 23-msec access speed and a 3½-in. 1.44M-byte floppy disk drive.

It is priced at $2,499.

Radio Shack
One Tandy Center
Fort Worth, Texas 76102
(817) 390-3487

Fora, Inc. has introduced a laptop that incorporates an Intel Corp. 80386 chip and features an optional expansion chassis equipped with slots for three (two 16-bit and one 8-bit) IBM Personal Computer AT bus expansion cards.

The 20-MHz LP-386C ($4,995) includes 2M bytes of random-access memory, which can be expanded to 8M bytes; 64K bytes of read-only memory; a 3½-in. 1.44M-byte floppy disk drive; and a 3½-in. 40M-byte hard disk drive. A 120M-byte hard disk version costs $5,495.

Fora
3081 N. First St.
San Jose, Calif. 95134
(408) 944-0393

Peripherals

Mouse Systems Corp. has introduced a three-button mouse designed for Apple Computer, Inc. Macintosh and Apple/Unix environments.

The A³ Mouse ($169.95) incorporates the company's M5 optical technology and features a software package, Power cdev, which allows users to access common command, sequence or function keys by touching a mouse button.

In an Apple/Unix environment, the mouse allows common commands to be performed simultaneously with cursor positioning. The A³ Mouse is scheduled to begin shipping this month.

Mouse Systems
47505 Seabridge Drive
Fremont, Calif. 94538
(415) 656-1117

Logitech, Inc. has announced a family of ergonomically developed, optomechanical input devices designed for IBM Personal Computer XTs, ATs, Personal System/2s or compatibles.

All models feature default resolutions of 400 dot/in. and online ballistics and cursor controls. Prices range from $119 to $199.

Logitech
6505 Kaiser Drive
Fremont, Calif. 94555
(415) 795-8500

Software applications packages

Micro Planning International, Inc. has introduced a high-end DOS-based project management program designed to handle multiproject planning as well as precedence and arrow methods simultaneously.

Micro Planner Professional is a 13,000-activity software program that enables standardized plans to be developed on Apple Computer, Inc. Macintosh, Microsoft Corp. Windows or DOS platforms.

MPI's *Micro Planner Professional coordinates multiproject planning on several platforms*

The product requires an IBM Personal Computer XT or compatible with 512K bytes of random-access memory, a 10M-byte hard disk, a monochrome monitor and a nine-pin Epson America, Inc.-compatible dot-matrix printer.

Micro Planner Professional is priced at $1,995.

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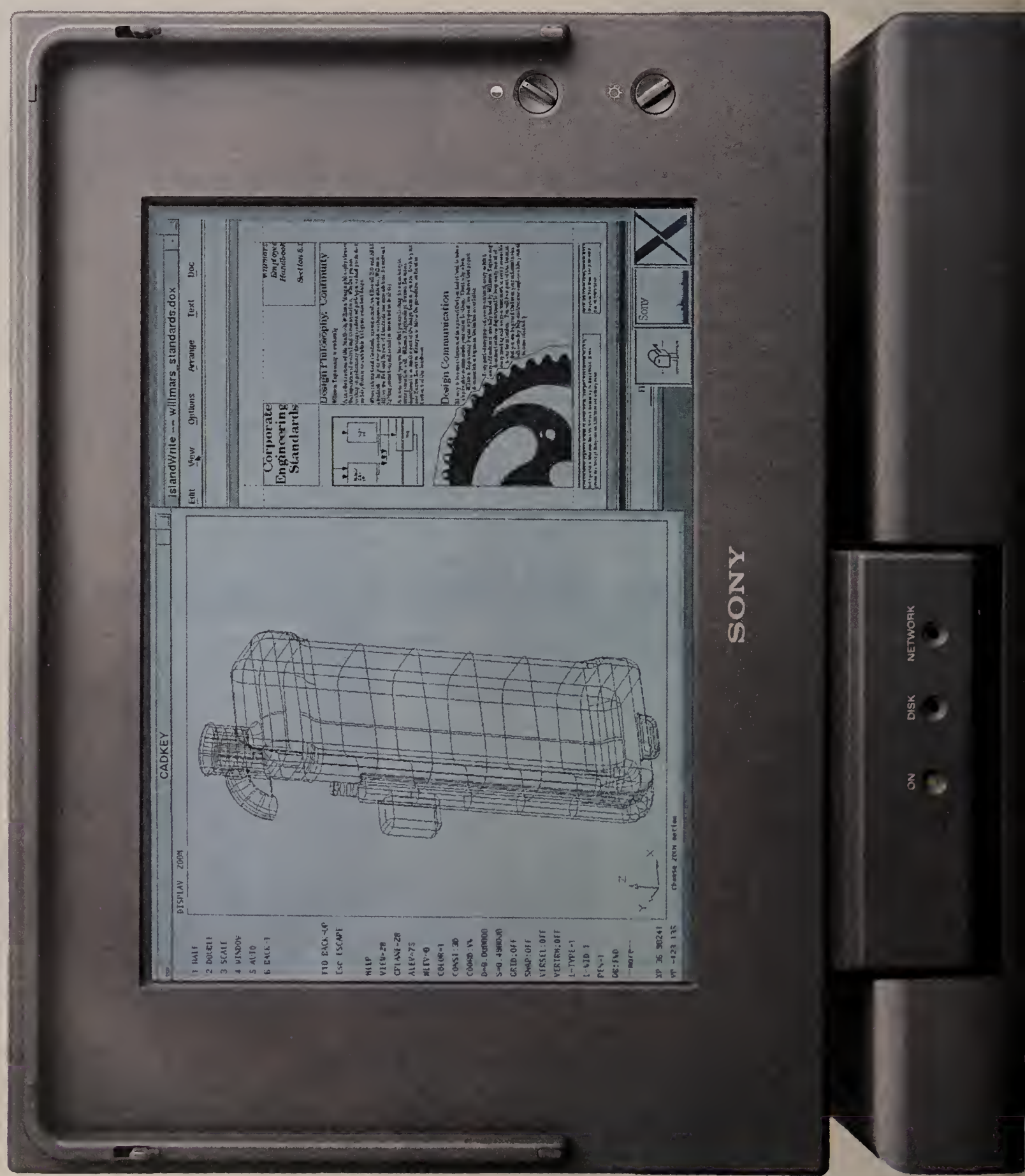

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Micro Planning International
655 Redwood Highway
Mill Valley, Calif. 94941
(415) 389-1414

Computer Associates International, Inc. has announced enhancements to Accpac Bedford, its entry-level desktop accounting package designed for MS-DOS and Apple Computer, Inc. Macintosh environments.

Accpac Bedford for MS-DOS Version 3.4 and Accpac Bedford for the Macintosh Version 1.2 let users import data from other programs into the product's general journal. A clear-paid invoices function has also been added to the accounts payable and accounts receivable modules.

Prices have been reduced to $199 each, the vendor said.
Computer Associates
711 Stewart Ave.
Garden City, N.Y. 11530
(516) 227-3300

Simplsoft Products, Inc. has released Version 3.0 of Client Manager, an information manager designed for sales tracking, correspondence, mailings and follow-ups on an IBM Personal Computer XT, AT or compatible.

Features include on-line real-time scanning of records based on any criteria and a report capability that permits reading of any ASCII or Aston-Tate Corp. Dbase file using any delimited or standard data field configuration.

The product is priced at $89.
Simplsoft Products
P.O. Box 17116
Boulder, Colo. 80308
(303) 444-8771

Cimlinc, Inc. has released Version 2.0 of Intelligent Documentation, a software package designed to create on-line representations of engineering and manufacturing documents.

The product can reduce the amount of macroprogramming required to generate applications, and it can automate paper-based information such as engineering change orders, the vendor said.

Intelligent Documentation Version 2.0 runs on Unix-based workstations from Sun Microsystems, Inc., Hewlett-Packard Co. and IBM. Prices range from $1,000 for a view-only version to $10,000 for a systems administrator package.
Cimlinc
1222 Hamilton Parkway
Itasca, Ill. 60143
(708) 250-0090

As you may have guessed, this is no ordinary laptop. Like every machine in the Sony NEWS family, it's a full function desktop workstation. Only smaller.

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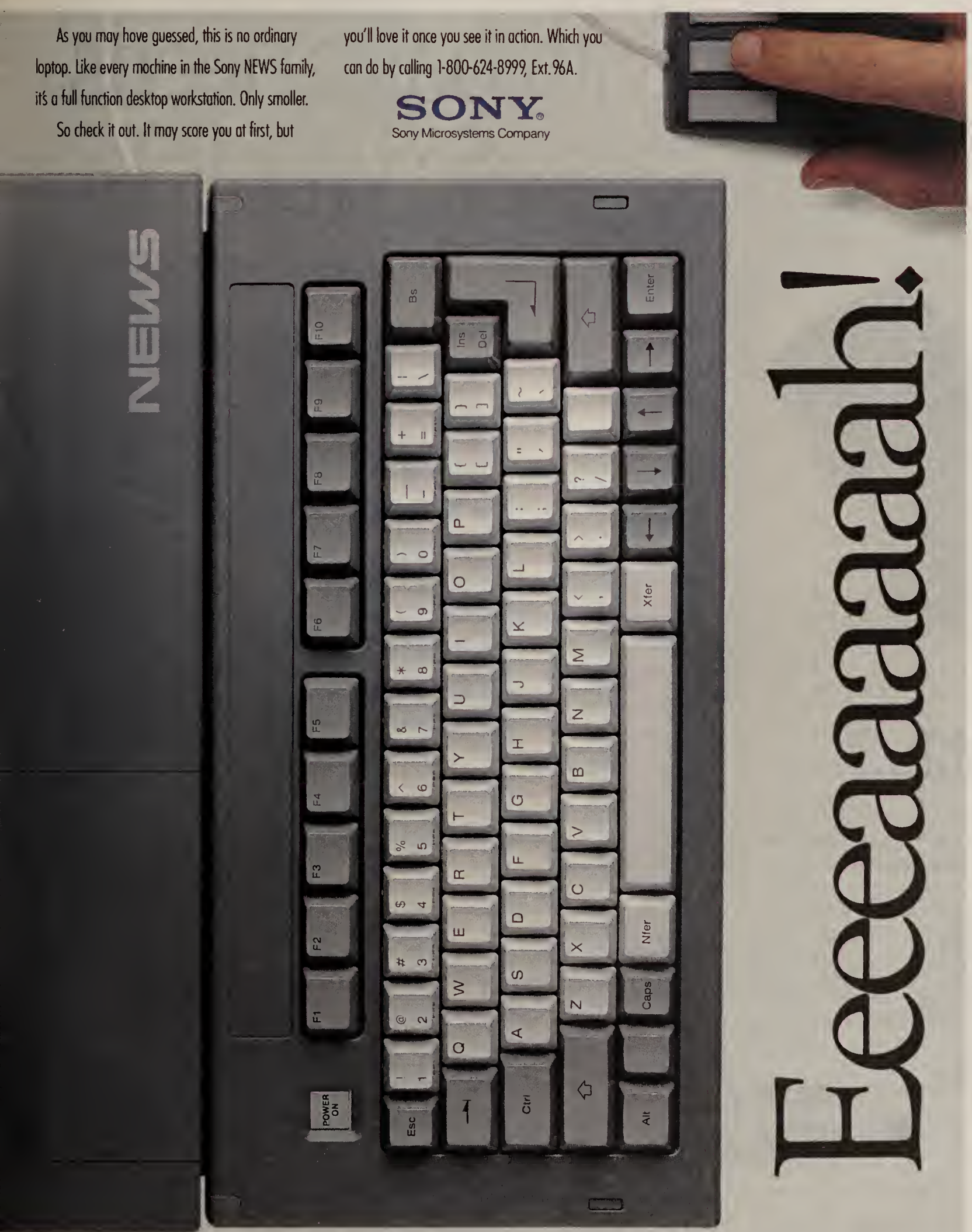

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Development tools

Solution Systems, a division of The Software Developers' Co., has announced Charge, The Software Performing Analyst, a tool that enables programmers to view information as bar graphs, statistics, execution counts or time measures.

The product can reportedly show programmers where code replacements or faster algorithms are needed within an application. Support for six compilers, including Microsoft Corp.'s Microsoft C Version 5.1 and Borland International, Inc.'s Turbo C and C++, is also featured.

System requirements include an IBM Personal Computer XT, AT or compatible with DOS Version 2.0 or higher and 384K bytes of random-access memory. The product is priced at $99.
Solution Systems
372 Washington St.
Wellesley, Mass. 02181
(617) 337-2313

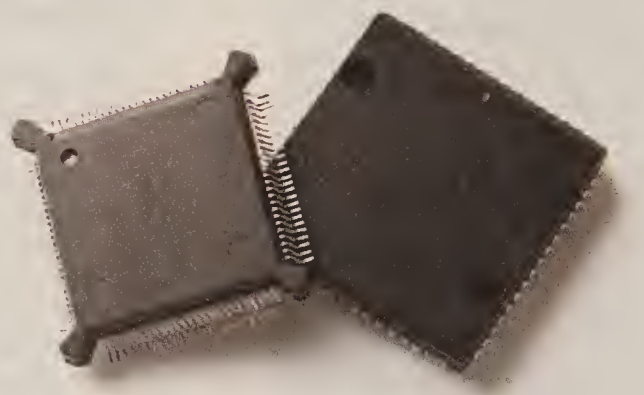
Microware Systems Corp. has announced a real-time multimedia development environment and user interface that is available for IBM Personal Computer users.

The Real-Time Audio/Video Environment runs on Microware's OS-9000 real-time operating system and was designed for use in real-time industrial applications such as process control and instrumentation.

The product enables designers to combine audio, computer-generated graphics, captured live video and customizable menus in one interface to configure realistic user interfaces and control panels, according to the vendor.

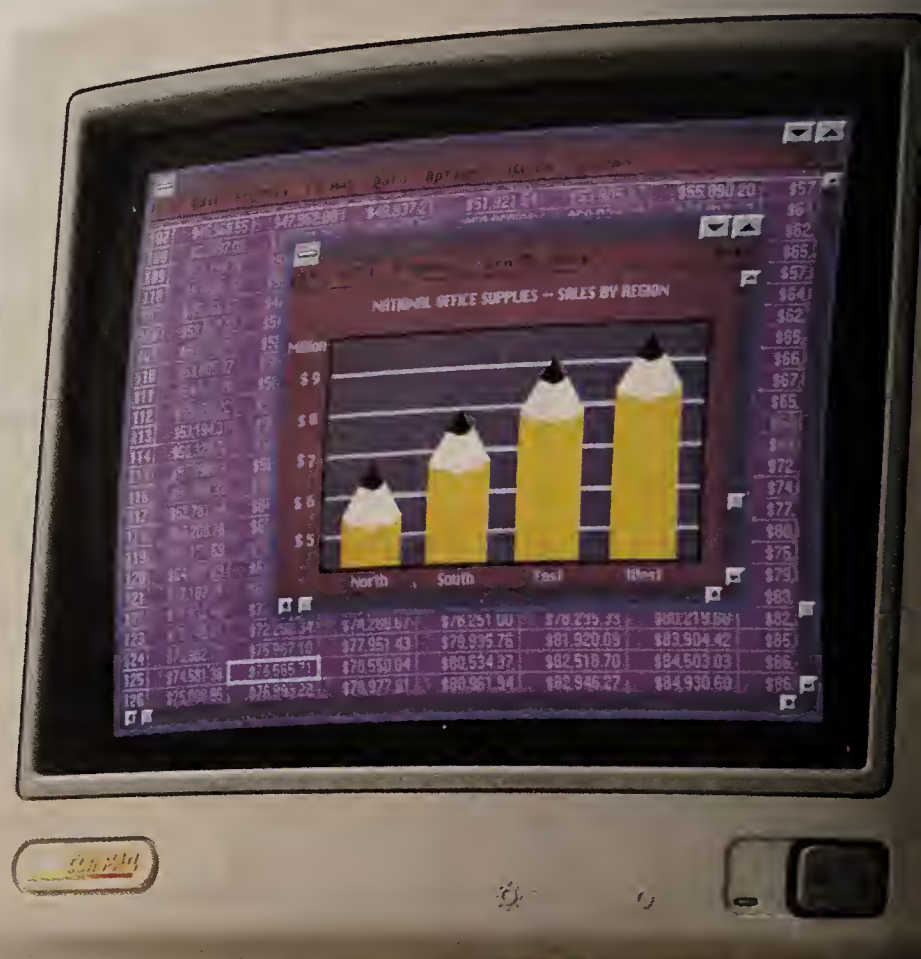
Single-copy pricing is $750.
Microware Systems
1900 N.W. 114th St.
Des Moines, Iowa 50325
(515) 224-1929

Compaq presents PCs for people with basic needs. (But not-so-basic wants.)



Your need for speed is met two ways. The COMPAQ DESKPRO 386N is powered by Intel's 16-MHz 386SX microprocessor while the COMPAQ DESKPRO 286N is powered by a 12-MHz 286 microprocessor.

If you want to look good, we can help you out in a hurry with standard features such as accelerated VGA graphics that offer 132-column support.



"Shhh..."

Everyone needs a little peace and quiet. That's why both PCs employ dual-speed fans and a fixed disk drive time-out to ensure quiet operation.

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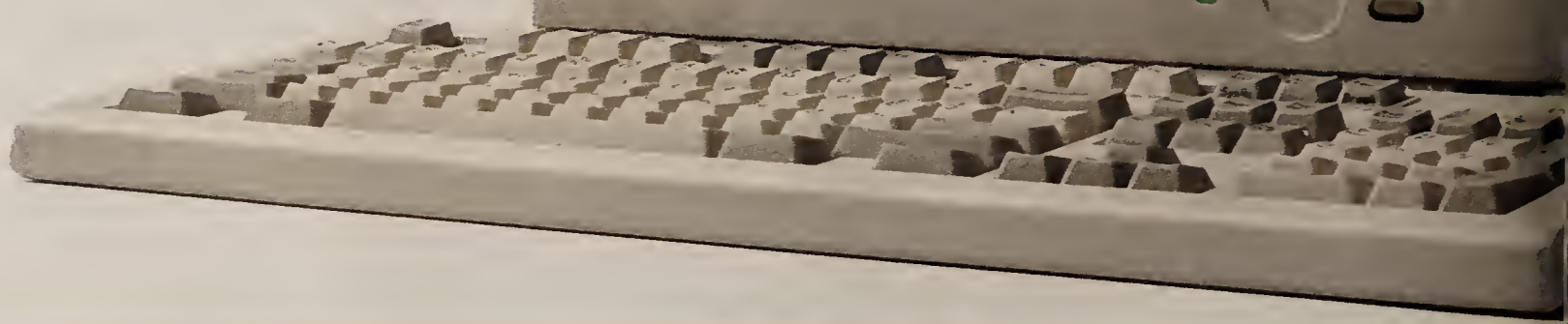

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People want their personal space. Our CPU footprint is a trim 15" wide by 14.9" deep. So it won't take over your desk.
There are times when you need a little outside help. Built-in parallel, serial and pointing device interfaces let you connect a mouse, modem and printer without using a slot.
You need tools that work the way you work. That's why you'll find the flexibility to use a 3½- or 5¼-inch diskette drive, a fixed disk drive or even a diskless model.
These days, you want a sense of security. Especially if you work on a network. A range of software and hardware features are built in to safeguard data and PC components.
The COMPAQ DESKPRO 386N and COMPAQ DESKPRO 286N Personal Computers are not-so-basic solutions for both stand-alone and networked computing. They were designed from the ground up not just to be the most affordable COMPAQ PCs ever, but to live up to our mandate of simply working better.
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So when you compare COMPAQ with lower-priced alternatives, look beyond the basics. You'll find COMPAQ delivers the better value. For more details and the location of your nearest Authorized COMPAQ Computer Dealer, just call 1-800-231-0900, Operator 135. In Canada, 1-800-263-5868, Operator 135.
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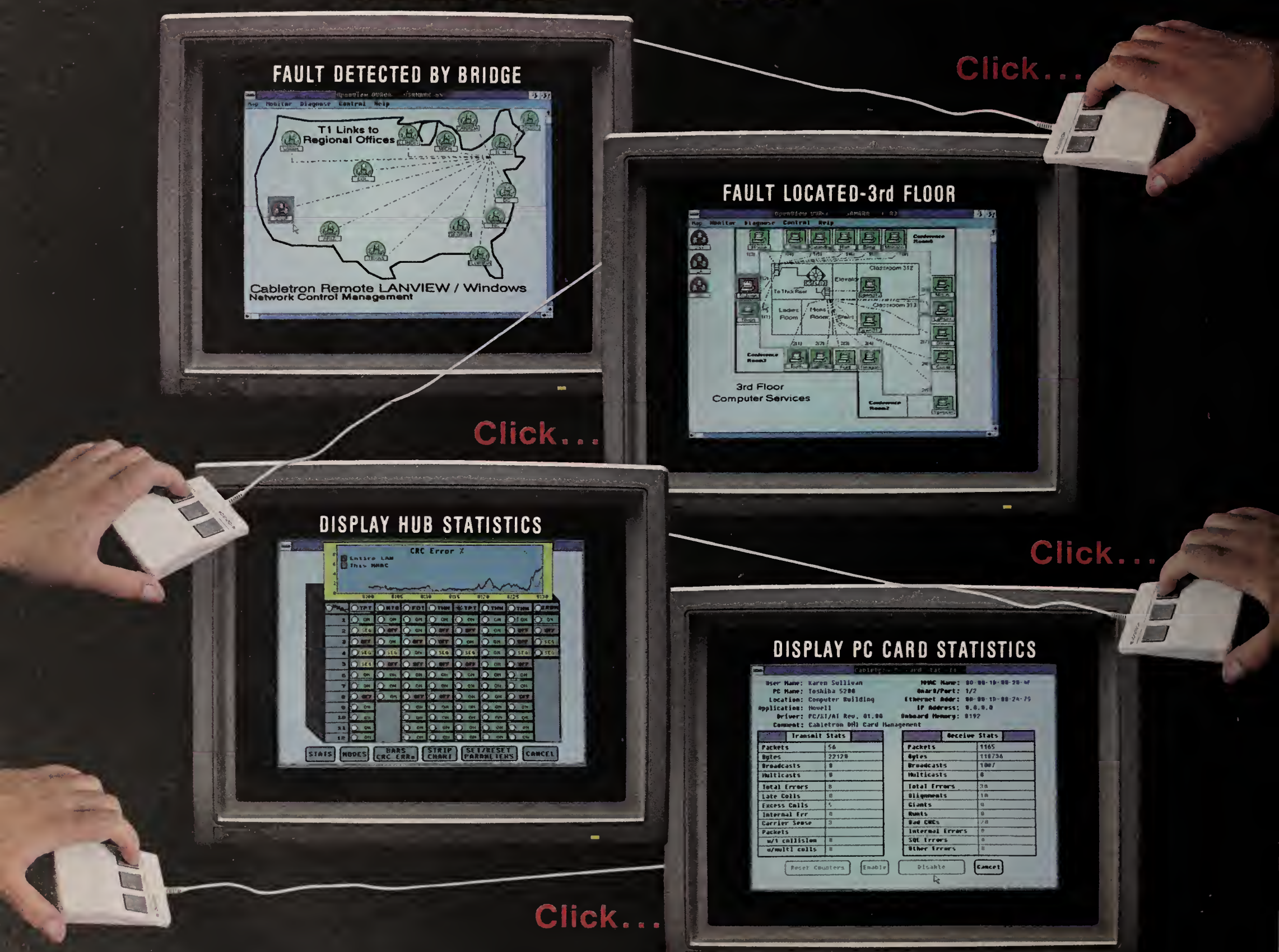

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Users join open systems forum

BY ELISABETH HORWITT
CW STAFF

Historically a vendors-only body, the Open Systems Interconnect (OSI) Network Management Forum has determined that it must open its doors to users if it is to effectively promote standards-based interoperability among different vendors' network management systems, according to the organization's recently appointed president, Robert Montgomery.

The forum's original purpose was to promote the development of common specifications which, when widely implemented by vendors, would provide integrated network management across a broad range of networking systems. With a vendor membership of more than 100 companies, the organization is now looking for 15 to 18 users to meet twice per year as its Users Advisory Council. The council's purpose is to provide the vendor side of the forum with input on its plans and insight on users' network management priorities, Montgomery said.

Ideal candidates for the advisory council are users and companies that are acquainted with "the inefficiencies and problems" associated with multivendor network management, Montgomery said.

Montgomery is *seeking users' advice on open systems*

On the other hand, the forum is not expecting all council members to have a definitive stake in OSI-based management, Montgomery said.

What users do want is what a network management standard can best provide: a set of stable products that have gained widespread industry acceptance and "will not die on the vine," said Elisabeth Adams, forum director of operations.

However, users still see network management standards as a long-term goal, Adams said. In the meantime, they are making do with what is available — and that is often a combination of vendor platforms supplemented by in-house programming.

Securities Industry Automation Corp. (SIAC) is one such company. The stock exchange systems subsidiary is in the process of developing what it has dubbed "Grand Unified Management or GUM: the ideal system where one person at one console can manage all networks and the entire facility, including air-conditioning, power and applications," said Andrew Bach, the firm's director of communications engineering.

Having recently migrated to an OSI-based local-area network platform, SIAC plans to get to OSI-based network management eventually, Bach said. However, right now "it's a choice between proprietary or nothing," he added. "OSI just isn't there yet."

The firm is presently looking at a combination of IBM's Netview, Digital Equipment Corp.'s Enterprise Management Architecture and its own in-house work, Bach said. "Each vendor is talking about providing interfaces to a GUM. As we thread our way and nudge vendors, we hope to come up with a common answer for all of them."

The forum has been working toward common management integration specifications that its members, including IBM and DEC, will eventually support on their products. British Telecom PLC and AT&T are conformance-testing forum network management specifications. Four vendors have finished products based on the specifications and will begin conformance testing soon. Fourteen vendors are actively developing products, and 10 firms are planning to do so, Montgomery said.

Now, the forum wants ongoing user participation as it moves to incorporate more specific tools and functions into its specifications. The organization is already acting on suggestions it has received from users who participated in a recent president's roundtable meeting, Montgomery said. Among the issues identified as top priorities are the following:

- Accounting and inventory applications to keep track of network use.
- Access control and security issues. The forum plans to release specifications for network security later this year.
- A management information base that will enable users to handle a mix of network equipment and protocols.
- The ability to get things up and running fast after a failure.
- Better insight into and control over LANs.

One frequently cited overall user goal, Adams said, was decreasing the number of management workstations needed to handle multivendor network installations "so you don't have to buy a new Sun workstation every time you get a new type of network device."

Electronic meetings increase

ANALYSIS

BY JOANIE M. WEXLER
CW STAFF

The videoconferencing market's ducks are all in a row, and user companies are taking aim at a technology that has waited decades for its ship to come in.

Plummeting switched network service and equipment prices, improved technology and slashed travel budgets all add up to rational cost justification for "meeting without being there."

In addition, vendors and carriers reported a dramatic surge in demand for videoconferencing facilities since the onset of war in the Persian Gulf. U.S. Sprint Communications Co., for example, has said that its videoconference network traffic has tripled during the last few weeks.

Aside from security worries over global travel, increasing numbers of firms can afford to furnish rooms on their premises with videoconferencing essentials: a coder/decoder, camera, monitor, microphone and audio system.

The coder/decoder, the heart of the videoconferencing system, compresses video signals so they can be transmitted less expensively. "New codec software is giving us better quality video at lower data rates," remarked Arthur Yee, a systems consultant at New York-based Metropolitan Life Insurance Co. and a user of Peabody, Mass.-based Picturetel Corp.'s V3100 videoconferencing equipment.

Yee said he looks forward to adding on to his nationwide Picturetel network with the vendor's modular V3100-compatible System 4000 that was rolled out last month because of its echo-canceling feature. One central microphone can now pick up

Continued on page 58

Prime time

Plummeting costs, on-demand network services and economic factors will inspire more firms to tune into videoconferencing

*Estimated

Source: The Yankee Group CW Chart: Paul Mock

FEATURE: PREPARING FOR A NEW EUROPE

EDI booms as global outlook blooms

BY ALICE LAPLANTE
SPECIAL TO CW

At Sea Land Service, Inc., using electronic data interchange (EDI) worldwide is essential for competitive reasons: International customers of Sea Land's cargo services demand the efficiency and timeliness EDI provides, and for the Edison, N.J.-based shipping company to ignore EDI would be to lose valuable business around the globe.

"We are very customer-oriented," says Hans Weiting, an EDI specialist at Sea Land. "We will do whatever it takes to work with them."

Weiting's flexibility underscores an unavoidable conclusion: As Europe moves toward a common market in 1992, EDI has taken on rapid visibility and importance. European governments are pouring millions of dollars into efforts to ensure that intercountry trading of electronic data, as well as more durable goods, goes smoothly for all.

Ovum Ltd., a market research firm in London, forecasts rapid growth in the UK — the largest European EDI market — with estimated 1990 revenue of $47 million from software, training and other services growing to $169 million in 1994. Ovum also expects EDI to take off to a lesser degree in France and Germany.

Still, U.S. companies looking to do business in Europe using EDI face considerable challenges. Edifact, the emerging international EDI standard, is incompatible with the ANSI X12 standard that most U.S. firms employ and is far from being completely implemented. The telecommunications infrastructure in some parts of Europe, particularly the southern and eastern countries, is considered primitive by U.S. standards. And there are inevitable language and cultural barriers.

Philip Anderson

However, EDI is a growing force in U.S./European trade. According to EDI Spread the Word, an EDI consulting group in Dallas, 3,000 to 5,000 European businesses currently use EDI, compared with 12,000 in the U.S. "It is my belief that we will see the European trade bloc surge ahead of North America in EDI use in the

Continued on page 61

Electrolux Chose NetWare To
From Operating

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When Electrolux corporate management needed to share information with 600 sales offices, they chose the cleanest network solution they could find.

"Our management team was isolated from critical sales figures. And we needed a one-keyboard solution for several computing environments," says Brian Skelton, senior networking programmer/analyst.

That's when America's premier floor care company chose NetWare,® the only PC-based network operating system that's in its eighth generation. "We chose NetWare because it's a proven, flexible network solution," recalls Skelton.

In addition to sharing information, NetWare allows Electrolux to share expensive software. In fact, NetWare is compatible with thousands of PC-based applications. And since NetWare is hardware independent, there's no fear of hardware incompatibility or obsolescence.

Skelton puts it this way, "NetWare is the network of choice because compatibility with other products is built in. It gives us an open platform to connect multiple workstations, and the flexibility to choose many routes for network integration."

In just three years, Electrolux has automated from six standalone PCs to an integrated business-wide network with mainframe connectivity, remote access and a workstation on every desktop. And Novell has helped meet its growing MIS needs with solutions and support that only the responsible leader in network innovation can provide.

Call 1-800-LANKIND for your 1990 NetWare Buyer's Guide. And learn more about how NetWare cleared the way for a business-wide network at Electrolux.

The Past, Present, and Future of Network Computing.

Electronic

CONTINUED FROM PAGE 55

the voice of a speaker wandering around the room with no audio degradation.

Some firms with occasional videoconferencing needs are taking advantage of Sprint's worldwide videoconference network, Meeting Channel. Other users are taking a hybrid public/private approach.

Applications to the law

Legal Image Network Communications, Inc. in Dallas, for example, uses a combination of Austin, Texas-based Videotelecom's equipment and Meeting Channel to allow court reporters to take depositions from witnesses. The company has its own facilities in about 20 cities, "but in towns where we have none, we use Sprint's," said David Jackson, the firm's vice president (see story below).

"It is now cost-justifiable to use videoconferencing for a two- to three-hour deposition," Jackson said. "However, it's cheaper to fly for a full day to New York. Transmission costs still need to drop, and the emergence of switched 384K bit/sec. services will probably help that."

A minimum of two 56K bit/sec. channels is required for full-motion video. Jackson's application, however, requires the higher bandwidth because lag time generated by slower speeds causes videoconference participants' voices to overlap, inhibiting verbatim reporting.

Switched 384K bit/sec. services currently rolling out from the long-distance carriers and proliferating Integrated Services Digital Network primary-rate services are contributing to the cost decline.

"Five years ago, you shelled out $100,000 for equipment and $1,000 per hour in coast-to-coast transmission costs over dedicated lines," said Herbert R. Maher, an analyst at Tucker Anthony, Inc., a brokerage firm in Boston. "Now you can get near-television quality for under $50,000 and pay about $15 per hour for switched coast-to-coast service."

Sprint made Meeting Channel more accessible last month by announcing that customers with dedicated T1 (1.5M bit/sec.) circuits could run video over their packet- and circuit-switched data on a channel dedicated to video. In addition, the carrier delivered Meeting Channel access over its VPN virtual private network service. VPN users can dial up bandwidth as needed on Sprint's public-switched network for voice, data or video service.

Neck and neck in the videoconferencing equipment market are Picturetel and industry pioneer Compression Labs, Inc. in San Jose, Calif. Tucker Anthony attributed a 47% market share to Compression Labs and 34% to Picturetel for 1990. However, in terms of shipments, Maher said, the firms are at 41% and 39%, respectively. Videotelecom ranks third with a healthy 10% in both categories.

The Yankee Group, a research firm in Boston, estimated that between 20% and 30% of Fortune 500 companies now have on-site video rooms. However, analyst Mark Lowenstein said, early Yankee Group projections show the video equipment market in 1991 to be nearly triple what it was in 1989 (see chart page 55).

"The videoconferencing business is timely but not enduring," Maher said. He added that vendors are already eyeing ways to expand their expertise, such as using compression for direct broadcast of movies to the home via satellite.

Standard fare

The telecommunications manager at J. C. Penney Co. is skeptical about using videoconferencing because the standard allowing different vendors' equipment to communicate is not yet in place.

"Today's scenario assumes you only want to talk to yourself," said Al Ladwig, who is currently heading up an ISDN pilot program for transmitting still images between local-area networks (see story page 59). "Videoconferencing will really take off when everyone can talk to everyone, as in the fax world."

However, interoperability is being addressed by the Consultative Committee for International Telephony and Telegraphy, which said it hopes to have its PX64 coder/decoder standard in place by midyear.

Herbert R. Maher, an analyst at Tucker Anthony, explained that videoconferencing vendors plan to continue to offer proprietary algorithms on their coder/decoders.

"Picture quality is compromised with the standard algorithm," he acknowledged. He explained that because transmission speed standards vary, simply combining the best characteristics of the proprietary systems poses some difficulties.

Sprint's Meeting Channel fills an interoperability gap by providing a gateway service that translates other vendors' coder/decoder algorithms into its own. Firms can then supplement the private videoconferencing networks with Sprint conference rooms in locations where they do not have their own videoconference room. They can also use Sprint as a gateway into other companies running different vendors' equipment.

JOANIE M. WEXLER

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J. C. Penney pleased with results of its ISDN testing

BY JOANIE M. WEXLER
CW STAFF

DALLAS — To experience a true sampling of the Integrated Services Digital Network (ISDN) promise, J. C. Penney Co. would have to find other companies using ISDN service and dial them up on the fly.

In the meantime, the retailer is evaluating the next-best thing. A 3-month-old in-house trial allows J. C. Penney to balance voice and data traffic loads and transmit still images between local-area networks. The pilot program is demonstrating interoperability among ISDN premises equipment and the local and interexchange carriers to the store's satisfaction, according to Al Ladwig, manager of telecommunications.

The test is being conducted over primary-rate (1.5M bit/ sec.) ISDN lines and involves network access equipment from Teleos Communications, Inc. and carriers Southwestern Bell and MCI Communications Corp. The intercarrier interoperability issue is significant in that long-distance carriers have been more aggressive in offering primary-rate service than the local carriers, which have focused on basic-rate (144K bit/sec.) ISDN service. The disparity has been one inhibitor to end-to-end communication over ISDN.

Often described as a technology seeking an application, ISDN has found a couple of important ones at J. C. Penney, according to Ladwig. The firm is dialing up 64K bit/sec. chunks of a 1.5M bit/sec. channel — up to 384K bit/sec. — for linking LANs in geographically dispersed stores. The main attraction of the technology, Ladwig said, is ISDN's switched nature, which allows customers to access and pay for bandwidth only when they need it.

"In a store, you usually have a limited number of lines that you use for voice, and you dedicate a link to data," Ladwig explained. "Bandwidth on demand allows us to allocate more bandwidth to data when our needs dictate it."

J. C. Penney's transport of still images between stores could eventually lead to implementation of ISDN to enhance the company's full-motion, one-way video broadcasts now being transmitted by satellite to speed the final selection of merchandise styles and colors.

Ladwig said the company has 800 stores that would all be candidates once service is available from carriers in those companies' locations.

While other higher speed switched services such as Synchronous Optical Network and Switched Multimegabit Data Service are imminent and often discussed in terms of obviating ISDN, Ladwig pointed out, "the distinction here is that we're talking about small offices using limited bandwidth. These other services are very exciting but may be more expensive than what a store can afford."

ISDN represents the vision of a global, dial-up network that integrates several digital services on one link. Its ultimate goal is to allow users to dial up data, video, image and voice connections ubiquitously in the way they place voice telephone calls today.

ISDN was conceived years ago but has been slow to come to the masses because of the onerous task of upgrading the world's telecommunications systems.

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HP Task Broker ports to Sun

BY J. A. SAVAGE
CW STAFF

Aiming to reap profits from its software technology regardless of hardware platform, Hewlett-Packard Co. announced that its Task Broker product will be available to run on Sun Microsystems, Inc.'s Scalable Processor Architecture (Sparc) platforms.

Task Broker takes a problem that is too big or time-consuming to run on the user's workstation and parcels it out to other available processors on the network.

Porting Task Broker to Sun workstations is another action in HP's plan to rely more on software revenue: Last month it ported its computer-aided software engineering package to the Sun platform. The company is trying to grow its software revenue from the current 10% to 30% in the next three years, according to Bob Frankenberg, vice president of HP's Cooperative Computing Group.

Curiously, HP is providing software for Sun's older workstations — those based on Motorola, Inc.'s 68000 processors — while Sun has said it will no longer support the older systems with new software. Task Broker reportedly will also run on Sparc-based systems that use the Sun operating system Version 4.03 or higher.

Task Broker will be available through San Diego-based Science Applications International Corp. A 10-node license costs $5,000 and is scheduled to be available in June.

NEW PRODUCTS

Local-area networking hardware

Storage Dimensions, Inc. has announced a series of Extended Industry Standard Architecture bus-based storage systems designed for Novell, Inc. Netware local-area networks.

The internal, hard-disk subsystems — part of the company's Lanstor product family — provide 330M, 650M or 1G bytes of storage, depending on model.

Pricing ranges between $3,920 and $7,495, depending on type of model.

Storage Dimensions
2145 Hamilton Ave.
San Jose, Calif. 95125
(408) 879-0300

H-Three Systems Corp. has rolled out a token-ring network card designed to connect Apple Computer, Inc. Macintosh II series computers to token-ring local-area networks.

The Macring NB 16/4 ($995) includes Texas Instruments, Inc.'s 16M/4M bit/sec. token-ring chip set and a ring interface developed to eliminate jitter, the vendor said.

H-Three Systems
100 Park Drive
Research Triangle Park, N.C. 27709
(919) 549-8334

Western Digital's *Elite 16 Combo is part of the Elite family of LAN adapters*

Western Digital Corp. has announced the Ethercard Plus Elite 16 Combo, a 10Base-T-compatible local-area network adapter that features connectors for coaxial and 10Base-T unshielded twisted-pair cabling.

The 16-bit board is part of the Elite family of LAN adapters.

The series also includes the Ethercard Plus Elite 16, which features connectors for thick and thin coaxial cable; the Ethercard Plus Elite 16T, which provides an interface for 10Base-T unshielded twisted-pair cable; and the Ethercard Plus Elite, which features dual-ported, shared-memory architecture for 8-bit operations. Prices range between $249 and $399.

Western Digital
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(714) 932-5000

Modems

PSI Integration, Inc. has announced an internal facsimile/data modem designed for Apple Computer, Inc. portable systems.

The Comport 5/42 Fax/modem ($799) operates at 9.6K bit/sec. as a fax and at 2.4K bit/sec. as a data modem. Its fax utility software allows Macintosh portable users to send and receive faxes, and its Quickfax desk accessory allows users to send faxes from within an application, the vendor said.

The product is scheduled to begin shipping this month.

PSI Integration
2005 Hamilton Ave.
San Jose, Calif. 95125
(408) 559-8544

UDS, a unit of Motorola Information Systems Group, has announced the UDS V.3227, a modem designed for central-site and modem-pooling applications.

The device complies with CCITT V.32 for 9.6K bit/sec. communication and V.42 bis standards for error correction and data compression. It can reportedly operate at 9.6K, 4.8K, 2.4K or 1.2K bit/sec. without requiring data compression.

The UDS V.3227 is scheduled to ship in the first quarter and is priced at $1,145.

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5000 Bradford Drive
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Countywide network stitches together security blanket

County links agencies with private X.25 TCP/IP network

BY CAROL HILDEBRAND
CW STAFF

CONTRA COSTA COUNTY, Calif. — So you haven't paid a few parking tickets in Martinez. What's to worry? The officer who pulls you over in Pacheco is never going to know, right?

Guess again. With the network currently being set up among the Contra Costa County's 18 cities and several county law agencies, chances are that the uniformed person peering in your car window will know all about those indiscretions down the road.

"In effect, we needed a path to connect [the agencies'] disparate computers so they could talk to each other without a lot of special programming," said Cecilia Baird, project director for the network system.

Network Solutions, Inc. and Pacific Bell worked jointly to provide the county with a private X.25 network using Transmission Control Protocol/Internet Protocol (TCP/IP) and packet switching.

"This gives the ability for a DEC to talk to an IBM and vice versa without writing a lot of special interface software," Baird said.

All cities represented

Not all of the cities have their own computers. In all, there are about 14 computers on the network. "Some of the smaller towns are hooked onto someone else's computer, but they're all represented," Baird said.

Several applications are in the works. For example, agencies can now determine the status of court cases and the schedule for court appearances. This makes it much easier for an officer to check on whether he is needed in court, Baird said.

Another application, still under construction, is a centralized name index that will allow a law office to quickly check which other agencies have had dealings with an individual.

This index is currently up and running for courts and probation, and the individual cities are working with their computer vendors to be able to feed their information into the index. Baird said she hopes to see some of that data later this month.

And those parking tickets? Well, if you have avoided appearing in court to pay them, another program in the works could mean trouble. Arrest or bench warrants issued for failure to appear in court will be stored in a countywide warrant system. When a police officer pulls somebody over, he will be able to check the system for outstanding warrants, according to Baird.

Neighboring county Alameda has a similar system in place, Baird said, and access to that has proven extremely useful. "We're looking at either going out on our own or working with Alameda to enhance that system," she said.

EDI

CONTINUED FROM PAGE 55

next three to four years," says Marshall Spence, president of the EDI Council of Canada in Toronto.

Experts stress that implementing EDI in Europe is a business decision — one that can add up to big bucks.

"You have the technology to buy and to put in place, which almost always requires you to redesign your business processes and re-establish interfaces with your customers and suppliers," says Jeff Sturrock, senior manager of the information systems practice at Ernst & Young in Dallas.

However, there are also numerous technical hurdles. Most U.S. firms use the ANSI X12 standard, whereas European firms are embracing Edifact. Ken Hutcheson, co-chairman of the X12 committee, announced one year ago that his goal was to "align" Edifact and X12 by 1994, but most experts dismiss this as overly optimistic.

"Thinking it could be done by 1994 or even 1995 was daydreaming," says Robert Hurd, director of international programs at the Data Interchange Standards Association in Alexandria, Va.

Each has its own standards

There is an additional standards complication: Because Edifact is still in its infancy, a majority of European firms have not yet adopted it. Instead, they still use EDI standards created within their own country or industry.

"There are not yet sufficient [methods] for international cargo tracking to do all our EDI business with Edifact," Weiting says. "So we will translate from ANSI X12, which we use in the U.S., to any proprietary standard used overseas in Asia or Europe."

For the more widely used standards, translation is not a problem, Weiting says, because available software makes it a relatively painless process. However, for companies using more obscure standards, figuring out how to use EDI can be a headache.

"Obviously, we try to discourage this [use of a proprietary standard] as much as possible because then we have to write our own translation software," says Weiting, who adds that such a project is "no easy task."

Still, he says, EDI is so important to the way his company does business that "this is no longer a real barrier."

Many EDI managers at U.S. corporations say translation is no longer a burning issue.

"There are literally hundreds of companies manufacturing translation software that can provide transparent translation between ANSI X12 and a host of other standards," says Bill Cafiero, manager of corporate financial services at GE Information Services in Dallas. Cafiero is managing an international EDI funds transfer project and is also a member of the Edifact board.

"People who say they can't use EDI in Europe today because of the lack of standards are really just making excuses," Cafiero says.

An additional hurdle U.S. companies must face is an often substandard quality of telecommunications services overseas, EDI consultants and corporate users warn. Although the UK, France and Germany have sophisticated facilities, other European countries are less reliable, experts say.

Breakdowns and other problems

According to Ovum, chief problems include slow speed transmission rates — only 300 bit/sec. in some countries — and network breakdowns. Then there are transborder data flow issues in which the postal telephone and telegraph authorities (PTTs) of individual countries wish to control the movement of information using their facilities to go across borders.

These issues, however, have largely disappeared for many U.S companies through the use of value-added networks (VANs) that provide complete EDI services throughout Europe, eliminating the need to build a network "piecemeal" using the services of individual PTTs.

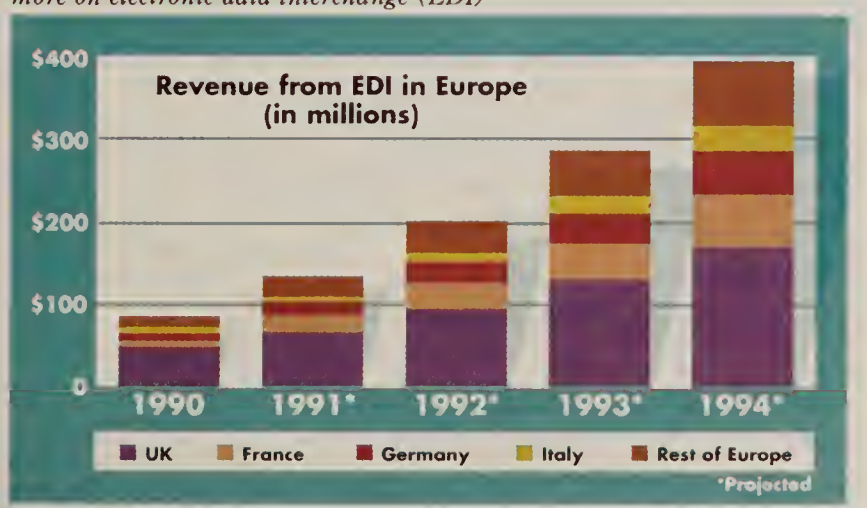
"The VANs know all the laws and regulations of the various countries and provide you with services that are legal within each country," Cafiero says. "This means that individual companies don't need to be telecommunications legal experts."

Instead, U.S. companies' primary focus on using EDI in Europe should remain on the actual business and trade issues, says Nicole Willenz, senior manager of the EDI consulting group at Price Waterhouse in Chicago. "The biggest challenge is to be able to understand the business practices of your foreign trading partners and come to some agreement about how they should be harmonized."

LaPlante is a free-lance writer based in Palo Alto, Calif.

Good connections

As Europe moves toward 1992 and beyond, business will count more and more on electronic data interchange (EDI)



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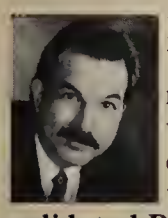

David M. LeVan has been named senior vice president of corporate systems at **Consolidated Rail Corp. (Conrail)** in Philadelphia.

Heading the newly formed corporate systems department, LeVan is responsible for information services, administrative services and resource development. He reports to James A. Hagen, chairman, president and chief executive officer.

LeVan, 44, was previously vice president of corporate strategy at Conrail. He joined the 14-state rail network in 1978 in the finance department. He has held the positions of assistant controller of general accounting, assistant vice president of auditing, assistant vice president of treasury and vice president/treasurer.

LeVan holds a bachelor's degree in business administration from Gettysburg College in Gettysburg, Pa.

Joseph R. Phelan, manager of corporate electronic data interchange programs at Ford Motor Co., has been appointed 1991 executive director of the **Automotive Industry Action Group (AIAG)** in Southfield, Mich.

The AIAG, with 700 member firms in the vehicle and component industries, develops technology and business practice standards to improve productivity and quality.

Phelan, a 25-year auto industry veteran, has held management positions in transportation and traffic, MIS and production planning control.

Who's on the go?

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Technology succeeds at Failure

IS helps Failure Analysis discover why things go 'boom' in the night

BY MAURA J. HARRINGTON
CW STAFF

After the North Sea oil platform Piper Alpha exploded and burned off the coast of Scotland in July 1988, killing 167 people, Failure Analysis Associates, Inc. in Menlo Park, Calif., was called in to investigate the tragic accident — and to apply a lot of information technology in doing so.

Failure Analysis is a research firm that analyzes explosions of cars, trains, airplanes and helicopters, as well as engine failures, breakdowns in nuclear power plants and missile systems and other engineering disasters. The $60 million firm also tests consumer products for possible defects before they reach the market.

"Computers are used for about 90% of everything we do," says Roger McCarthy, chairman of Failure Analysis. For example, the company's 15 years of research into automobile accidents is stored in an object-oriented database containing more than 50 million automobile accident records. The company claims its database is the largest single collection of accident information in the U.S.

Cindy Charles

Failure Analysis' *Subbaiah and McCarthy see leading-edge technology as vital to their business*

Dummy crash

When conducting an analysis of a car crash or when testing a car's durability by test-crashing it (which accounts for almost 50% of the company's business), the company uses specially designed computers attached to dummies and to the automobile. The computers measure everything going on during the test crash, from the impact of the dummy's body against the windshield to the fluid dynamics in and around the car at the time of the explosion.

After the analysis is completed, all the information is stored in the database, which includes animated graphics and video used for further study, says Malladi Subbaiah, senior vice president at Failure Analysis and head of the computer systems department.

At Failure Analysis' 160-acre test and engineering center in Phoenix, engineers imitate an accident by reconstructing and blowing up the product or site. To record the accident or failure as accurately as possible, engineers use high-definition video and other high-technology equipment in the hope of finding the reason the usually bizarre or unexpected failure occurred.

Because Failure Analysis' work is so specialized, most software is developed in-house, as is some high-technology analysis equipment for certain uses. An internally developed, solar-powered monitoring unit was used to test the groundwater in a small Midwestern town located near a nuclear facility, for example.

"One of the things that distinguishes us from our competitors is that everything we study is backed up by scientific facts and figures," principal engineer Paul Johnston says.

Needle in a haystack

Failure Analysis used a scientific formula called finite element analysis to determine that a leak in a 22-ft wide Pacific Gas & Electric Co. pipe was the result of a crack.

While it may seem easy, Johnston says that looking for a crack in such a large underground pipe is like looking for a needle in a haystack.

"This type of work is perfect for computers . . . in fact, it couldn't be done without computing technology," Johnston says.

Founded in 1967 by five engineers with just $500 in capital, Failure Analysis went public in 1988 and reported revenue of almost $60 million in 1990. With no advertising budget, the company relies on its engineering expertise and word of mouth for all of its business.

While Failure Analysis' reputation

Continued on page 70

MIT report: IS potential remains unfulfilled

BY CLINTON WILDER
CW STAFF

The potential of information technology to transform businesses remains largely untapped, according to the findings of the six-year Management in the 1990s research program at the MIT Sloan School of Management.

The findings have been summarized in the book *The Corporation of the 1990s: Information Technology and Organizational Transformation*, published by New York-based Oxford University Press.

Edited by Michael S. Scott Morton, a professor at Sloan School, the book details the research carried out by MIT in conjunction with 12 sponsoring organizations.

The book concludes that to take full advantage of the business benefits of information systems, companies must undergo significant organizational change. The traditional ways of doing business "are very hard to discard, and it appears to be harder yet to learn new ones," Morton wrote in the book's introduction.

In presenting "the challenge of the 1990s," Morton said, there are "isolated examples of successful [IS] exploitation in particular functions or business units. However, on average, the expected benefits are not yet visible."

The steps necessary for successful transformation include aligning corporate and IS strategies, having a clear business vision, having a strong technology infrastructure and being organizationally flexible. Human resources management is a critical component because the changes that are essential to transformation are very threatening to many workers.

"The problem is knowing when to change to using new capabilities and when new capabilities should not be employed," Lester C. Thurow, dean at Sloan School, wrote in the book's foreword. "The problems are management problems and not hardware or software problems," he added.

CALENDAR

The Society for Information Management's (SIM) annual Institutional Member Conference will be held April 10-12 at the Westin La Paloma resort in Tucson, Ariz.

The theme of the conference is "Bridges to the Future — Theory and Practice." Speakers include Harvard Business School Professor F. Warren McFarlan, Naisbitt Group President John Elkins and Larry Ford and William Filip of IBM. Topics include business simplification, organization and the extended company.

For registration or information, contact SIM in Chicago at (312) 644-6610.

MARCH 10-16

LOMA Systems Forum and Exhibit. Orlando, Fla., March 10-13 — Contact: Susan Easler, LOMA, Atlanta, Ga. (404) 984-3778.

Perspectives: Maximizing Profits through Information Technology. Amelia Island, Fla., March 10-13 — Contact: Lynda Rosenthal, *CIO*, Framingham, Mass. (508) 935-4273.

Platforms for Computing Forum. Tucson, Ariz., March 10-13 — Contact: Edventure Holding, Inc., New York, N.Y. (212) 758-3434.

National Automated Clearing House Association '91. San Francisco, March 10-13 — Contact: NACHA, Herndon, Va. (703) 742-9190.

Corporate Contingency Planning Seminar and Exhibition. Palm Springs, Calif., March 11-13 — Contact: Disaster Recovery Journal, St. Louis, Mo. (314) 846-1001.

Architecture and Implementation. Los Angeles, March 11-13 — Contact: Short Course Program Office, UCLA Extension, Los Angeles, Calif. (213) 825-3344.

Computers in Libraries '91 Conference and Exposition. Oakland, Calif., March 11-13 — Contact: Kim Devan, Meckler Co., Westport, Conn. (203) 226-6967.

ICON: Interleaf's Users Conference. Anaheim, Calif., March 11-14 — Contact: Kathy Restino, Interleaf, Waltham, Mass. (617) 290-0710.

Knowledgeware User Group Metro New York Initial Meeting. New York, March 12 — Contact: Candy Zarr (212) 989-9829.

Conference and Exposition of Machine Perception Technology. San Jose, Calif., March 12-14 — Contact: Herb Greenebaum, Expocon Management Associates, Trumbull, Conn. (203) 374-1411.

Sensors Expo West. San Jose, Calif., March 12-14 — Contact: Susan Reuter, Expocon, Trumbull, Conn. (203) 374-1411.

User Alliance for Open Systems Conference. Dallas, March 12-14 — Contact: Steve Whitney, COS, McLean, Va. (703) 883-2716.

Opcon West. Palo Alto, Calif., March 12-15 — Contact: Soft Letter, Watertown, Mass. (617) 924-3944.

LAN Expo '91. Tokyo, March 13-15 — Contact: Marcom International, LAN Management Office, Tokyo, Japan (011) 81 3 403-8515.

Cebit. Hannover, Germany, March 13-20 — Contact: The German American Chamber of Commerce, Atlanta, Ga. (404) 264-1761.

Directions '91. San Jose, Calif., March 14 — Contact: International Data Corp., Framingham, Mass. (508) 879-6700.

Advanced Computer Law Institute. Washington, D.C., March 14-15 — Contact: Sherri Williams, Georgetown University Law Center, Washington, D.C. (202) 408-0990.

Computer Virus and Security Conference. New York, March 14-15 — Contact: IEEE, Washington, D.C. (202) 371-1013.

2021 AD: Visions of Society, Technology, Information and Communications. Phoenix, March 14-15 — Contact: National Engineering Consortium, Chicago, Ill. (312) 938-3500.

MARCH 17-23

Guide 79. Anaheim, Calif., March 17-22 — Contact: Guide Headquarters, Chicago, Ill. (312) 644-6610.

Conference on Multimedia and CD-ROM. San Jose, Calif., March 18-20 — Contact: Cahners Expositions Group, Customer Services, Stamford, Conn. (203) 964-8287.

Directions '91. Boston, March 19 — Contact: International Data Corp., Framingham, Mass. (508) 879-6700.

Making the Investment in Imaging. Marlboro, Mass., March 19 — Contact: Monica Falzone, AGS, Wakefield, Mass. (617) 438-0680.

Usenix Symposium. Atlanta, March 21-22 — Contact: Usenix Conference Office, El Toro, Calif. (714) 588-8649.

MARCH 24-30

DB/Expo '91. San Francisco, March 24-26 — Contact: Norm De Nardi Enterprises, Los Altos, Calif. (415) 941-8440.

Computers, Freedom and Privacy Conference. Burlingame, Calif., March 25-28 — Contact: CPSR, Palo Alto, Calif. (415) 322-3778.

Fiber Optics Conference. Leningrad, March 25-29 — Contact: Jennifer Kady, Information Gatekeepers, Boston, Mass. (617) 232-3111.

The Software Solution Show and Conference for Manufacturing and Distributing Businesses. Toronto, March 26-27 — Contact: Alwyn Mitchell, Software Matchmakers, Willowdale, Ont. (416) 756-3221.

Quick Response '91. Nashville, March 26-27 — Contact: Quick Response '91, Pittsburgh, Pa. (412) 963-8588.

MARCH 31 - APRIL 6

The Information Systems Security Association Conference. San Diego, April 1-5 — Contact: Richard Rueb, Irvine, Calif. (714) 854-5500.

Network Analysis Users Group Meeting. Vail, Colo., April 1-5 — Contact: Sandy Moretto, NAUG, Menlo Park, Calif. (415) 688-2700.

The Global Economy: Implications for Telecommunications Policy and Management. Los Angeles, April 4-6 — Contact: Matthew Berndt, Center for Telecommunications Management, Los Angeles, Calif. (213) 740-0980.

APRIL 7-13

Corporate EFT/Financial EDI Conference. Chicago, April 7-10 — Contact: UNC Business School at Chapel Hill, The University of North Carolina, Chapel Hill, N.C. (919) 962-9630.

Focus on Operations XI. Las Vegas, April 7-11 — Contact: Computer Operations Management, Orange, Calif. (714) 997-7966.

IEEE International Conference on Robotics and Automation. Sacramento, Calif., April 7-12 — Contact: Robotics and Automation, Boca Raton, Fla. (407) 483-3037.

Service Trends Conference. San Francisco, April 8-9 — Contact: Lori Larsen, Ledgeway/Dataquest, Lexington, Mass. (617) 862-8500.

Information Security Managers Symposium. Chicago, April 8-10 — Contact: Pamela Bissett, MIS Training Institute, Framingham, Mass. (508) 879-7999.

Loop Implementation: The Next Steps. Monterey, Calif., April 8-10 — Contact: Electronicast, San Mateo, Calif. (415) 572-1800.

Turning Audit Costs into Profits: Superstrategies for the Internal Audit Department of the 1990s. San Francisco, April 8-10 — Contact: Pamela Bissett, MIS Training Institute, Framingham, Mass. (508) 879-7999.

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COMMENTARY

Daniel Borgen and Michael Silverman

The art of managing expectations

"Let me tell you what I've come to expect from systems development projects: They take twice as long as promised, cost twice as much as anticipated and provide half the functionality they were designed for in the first place."

That is how one jaded end user described his experience with the project life cycle. Upon consideration, it raised some basic questions. Is this guy a chronic whiner who got picked on a lot in elementary school? Maybe. Is he surrounded by room-temperature-IQ technical incompetents who bring new meaning to the term "artificial intelligence"? Perhaps.

Regardless of his individual quirks, however, the software developers in this case forgot to adequately address a key component of successful system design and implementation: expectation management.

As system architects, we can properly define functional requirements, select the most appropriate technology, write elegant software and install an objectively viable system. But if user expectations aren't managed effectively, the whole project may still be met with an abundance of apathy, frustration and expletives.

Some statements appear simple on paper, but they are complex when put into motion. Look at $E=mc^2$. Look at "safe sex."

Expectation management sounds simple, too. It's a basic three-part process comprised of determining what the users expect, analyzing which expectations can't be met and managing the discrepancies to minimize negative results.

What could possibly go wrong? Everything.

The process starts in the needs assessment phase. This is an ideal time to establish a communicative rapport with the system's end users:

- Determine levels of computer literacy.
- Define acceptable degrees of the impact that the system will have on their existing work flow and culture.
- Differentiate the desirable from the mandatory.
- Locate the most convenient place to go for beer and pizza together.

Successful development efforts require project champions. Identify and nurture two or three "key users." These are the people that the rest of the staff comes to for help and whose opinions carry a lot of weight with their co-workers. Get these people on your side — or better yet, on your development team — early in the game. They are your advocates for buy-in, compromise and reason.

Once the foundation has been laid, the users' "expected deliverables" can be divided into three categories: included within the scope of the effort, available as a future enhancement or designed out.

Features such as an on-line Help subsystem may not be provided with the initial system, but the desired interface can be designed into the on-line software for later addition with minimal impact.

Other features may be completely excluded because of a variety of factors such as the hardware architecture, operating system and physical database design.

Schedule a set time and date on a recurring basis to keep key users up-to-date on project status and issues. These meetings provide an ideal forum to promote your cause. Plan carefully for them.

Prepare an outline form of tasks performed, tasks in progress and plans for the next period. Most importantly, maintain and review an "issues/resolution" report that highlights areas of concern, related dates, responsible parties and resolutions. Anticipate, document and put issues to rest as early as possible.

Finally, manage expectations about the status meetings. You are running the show. Create an atmosphere in which your attendees expect a brief, directed, purposeful session where they won't nod off into their coffee cups.

Beware of the packaged software installation. Typically, vended systems offer limited customization options and may handle particular functions in conflict with the way end users are used to performing these tasks.

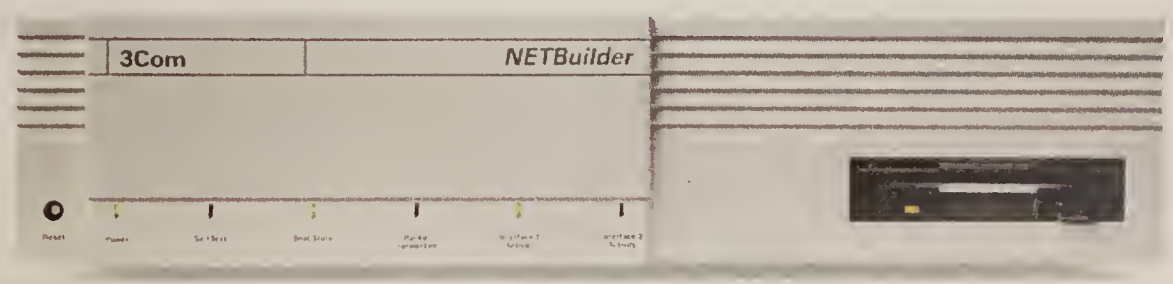
Let users know about this. If possible, arrange for the users to attend a hands-on demonstration of alternative packaged software options before a contractual commitment is made. But remember not to let them test-drive a Mercedes if their IS budget says Yugo.

Managing expectations takes time and practice, and nobody's perfect: Moses told his people to wait for 40 days while he scaled Mt. Sinai to bring back God's commandments. But he wasn't clear in his directions. His followers starting counting the days right away instead of waiting until the sun went down, as Moses had intended. They gave up when he didn't come back as expected, made a golden calf and got into a lot of trouble.

In the final analysis, though, Moses did pretty well. To this day, everyone credits him with doing a great job on that commandment project. Maybe they were expecting fewer than 10 of them.

Borgen and Silverman are managers at the information technology consulting practice of Deloitte & Touche in Seattle.

Ch Changes.



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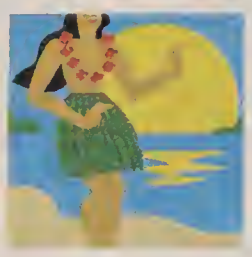
Managing IS in Hawaii is no vacation

Distance and time zone differences create challenges beyond what mainland IS shops face

BY JEAN S. BOZMAN
CW STAFF



HONOLULU — If you think you have trouble managing information systems on the mainland, how about trying to run a computer shop in the middle of the Pacific Ocean?

While many U.S. mainlanders find themselves pining for a Hawaiian vacation at this time of year, they may also have misguided notions about the work ethic of people who happen to live in Hawaii. "The atmosphere is more relaxed than it is on the mainland," said Gary Hakoda, senior vice president of IS at Central Pacific Bank in Honolulu. "But we don't run around wearing hula skirts and living in grass shacks."

IS managers who live here face the same challenges as mainland IS executives: hardware maintenance, software upgrades and how to have uninterrupted operations.

There are also disadvantages: Technical publications arrive two weeks late, and IS managers can plan on attending few conferences because of the expense of traveling to mainland cities.

"I think we are at a disadvantage," said Sadie Tanoura, director of IS at the Honolulu Department of Education. "If we want to attend large seminars held on the mainland and view the latest products, we have to spend a lot more time and money to get there."

Adding staff is also difficult. Hawaii's cost of living is among the highest in the nation, while pay is slightly lower than average.

Hakoda said many employers believe they can pay less because Hawaii's inherent beauty is an extra benefit. With an unemployment rate of about 3% — roughly half the national average — the available employee pool is smaller, too. Most IS jobs are centered in Honolulu because hotels and banks on the outer islands of Maui, Kauai and the big island of Hawaii tend to use smaller computer systems or terminals tied to computers on Oahu.

Distance and time zones are the main complaints of the Hawaiian IS community. "If you have an end-of-day problem here, you end up having to beep somebody on the mainland," said David Enersen, director of information services at Liberty House, a retail subsidiary of Chicago-based JMB Realty Co. "Availability of parts is always a concern. As a vendor, you've got to have the parts to back you up or be able to get them in quick, or you're dead."

However, technology is giving Hawaiians an assist when help is not available nearby. Answers are often just a telephone call away. "It doesn't really matter where you are in the world anymore, as long as you can get hold of someone by telephone, even if you have to get them out of bed," said Robert Lurito, vice president of MIS at DFS Hawaii, which operates duty-free shops. Time zones or no, software vendors find they must respond to user questions, even if it is 2 a.m. on the East Coast.

Dana Edmunds

Liberty House's Enersen *finds distance and time zones to be a hindrance: 'If you have an end-of-the-day problem here, you end up having to beep somebody on the mainland'*

Product news gets around quickly. The scale of the island of Oahu — 598 square miles — makes Hawaii's IS community a very close one. "If a vendor comes out here and they do a good job for one company, that spreads throughout the whole island," Lurito said. "And if they do something wrong, that also gets around." Monthly Data Processing Management Association chapter meetings help keep Oahu's 40 key sites together.

There are a handful of dominant computer suppliers in Hawaii — IBM and Digital Equipment Corp. are chief among them. Users said these two firms have prevailed against most competitors largely because of their ability to provide on-site support far from their warehouses on the mainland.

"We stick to the major vendors," said Don Fujimoto, MIS director at Alexander & Baldwin, which operates resorts and shopping centers. IBM and DEC are the dominant players, Fujimoto said. "If we use smaller vendors than that, we frequently have problems."

However, recent years have seen stepped-up competition from Hewlett-Packard Co. and Wang Laboratories, Inc. Wang used its Honolulu sales office as a stepping-stone to the Pacific Rim countries until it switched to an Asian sales office for Pacific sales.

State-of-the-art computers are outnumbered by aging IBM 4300s and DEC VAX 11/785s, users said. Support difficulties and slow growth in IS operations often limit users' hardware decisions.

Still, there are several IBM 3090 shops, including Hawaiian Telephone; the Hawaii Medical Service Association, which handles medical claims; and the Queens Medical Center, a large hospital complex. Large DEC installations include Hawaii's military complexes, such as the U.S. Naval Station at Pearl Harbor.

While mainframe sales may be stable, sales of personal computers and local-area networks are clearly taking off, just as they are elsewhere. Looking to the future, many users said they are planning to install distributed computer systems.

National and global networks are also growing because Hawaii's numerous satellite ground stations support links with remote computers. Honolulu's Central Pacific Bank recently linked up with the national Plus/Cirrus automated teller machine network.

It is the small-town aspects of computing in Hawaii that impress outsiders. "I think the IS community is more tight-knit here than in most other U.S. cities," Hakoda said. "People know who the other people are, what their reputations are."

Lurito could not agree more: "A vendor doesn't really have to advertise if he sells his product right the first time."

West Coast correspondent Jim Nash contributed to this report.

Hawaiian tropics

Hawaii's tropical climate has traditionally been a benefit great enough to allow island salaries for data processing professionals to remain lower than those on the mainland. However, a recent shortage of highly skilled programmers and telecommunications experts has driven salaries higher, said Gary Hakoda, senior vice president of information services at the Central Pacific Bank in Honolulu.

"People used to be willing to make the sacrifice in salary for a nice lifestyle here," he said. "But we recently used a headhunter to recruit a telecommunications specialist from California." The salary for the new hire was competitive with California rates, Hakoda said, and the bank also paid a finders' fee. "University of Hawaii graduates tend to look for jobs on the mainland," said Steve Carpenter, president of Hawaii operations at Dallas-based Affiliated Computer Systems, Inc. "You can attract people to come here from the mainland, but they must make a conscious decision to change their lifestyle, mostly because of the high cost of living here."

JEAN S. BOZMAN

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MIT professor earns ACM award

NEW YORK — An MIT professor is the recipient of the 1990 A. M. Turing Award from the Association for Computing Machinery (ACM).

Fernando J. Corbato, professor of computer science and engineering at Cambridge, Mass.-based MIT, was honored for pioneering the development of two early operating systems he worked on during the 1960s: Compatible Time-Sharing System and Multics.

The Turing Award, first presented in 1966, is ACM's highest honor. Corbato will receive the award March 5 at the ACM Computer Science Conference in San Antonio.

Three other awards will also be presented. Retired IBM consultant and former ACM President Walter M. Carlson will receive the Distinguished Service Award.

Gerald J. Sussman, professor of electrical engineering at MIT, will receive the Karl V. Karlstrom Award for contributions to the teaching of computer science. Sussman has taught at MIT since 1973. The ACM Outstanding Contribution Award will go to William B. Poucher, professor of computer science at Baylor University in Waco, Texas. Poucher will be honored for leading the ACM Scholastic Programming Contest.

CLIPS

Tim Lewis

Summaries from leading scientific and management journals

"Reliability of function points measurement: A field experiment"

By Chris F. Kemerer

MIT Center for Information Systems Research
Working paper

■ This statistically rich analysis of the popular function point metric for analyzing software complexity concludes that function points are more reliable than many people think.

Major concerns about the function point approach have centered around its validity as a measure of complexity when measured across different projects and by different people. A field experiment using actual software development projects found that function point counts done by two different people on the same project differed by only about 10%, while the correlation of the metric across two different development methods was as high as 0.95.

However, the study noted, the data collection effort is time-consuming and may account for the low use of function point analyses on software development projects. It recommends automated tools to speed data collection. This will make function points useful to a wider audience. — *Paul Gillin*

"The CIO/GIO as catalyst and facilitator"

By Jerry Kanter and Richard Kesner

Babson College Center for Information Management Studies
Working paper

■ The role of today's chief information officers is being redefined by the trend toward global business operations, leading to proposals for the job title of global information officer, or GIO. But the new title is less important than the substantive changes in management style that are needed to transform a traditional information systems executive into a global manager.

The global information officer may maintain a core group at headquarters to run the voice/data network, monitor standards compliance and scan the technology horizons for new opportunities, but the bulk of the systems development work will be done in the field. Further, the global information officer is not likely to have direct control over budgets and personnel in far-flung operating units.

The global information officer will have to become a respected consultant, guiding the IS executives in each of the host countries toward the goal of a global "information utility." Along the way, the global information officer will need to master the culture of each host country in which corporate IS operations reside. — *Mitch Betts*

"The impact of CASE on software development"

By Eileen Souza

Journal of Information Systems Management
Winter 1991

■ Computer-aided software engineering (CASE) is changing traditional methods of systems development through automation. Traditional software development methodology focused on tools that addressed the back end of the life cycle, including debugging aids and report generators. Later, fourth-generation languages, screen painters and code generators were developed, and in the past decade, front-end tools such as joint application developers, expert systems, personal workstations and local-area networks have appeared.

CASE has emerged to provide automation to the entire life cycle, with development emphasis on front-end tools.

The CASE life cycle has six phases:

- The business software planning phase. Incorporates the company's strategic plans into the software development life cycle, ensuring that development efforts advance business goals.
- The architecture definition phase. Partitions the enterprise model into discrete business areas for future analysis, determining the long- and short-term environmental needs required to support planned software development.
- The business-area analysis phase. Gives birth to specifications for the business area, documenting the accepted solution from the business perspective.
- The design phase. Transforms the models developed during the business-area analysis into design specifications.
- The development phase. Produces working program products and trained users.
- The operational management phase. Supports the system or release in a production environment. — *Jodie Naze*

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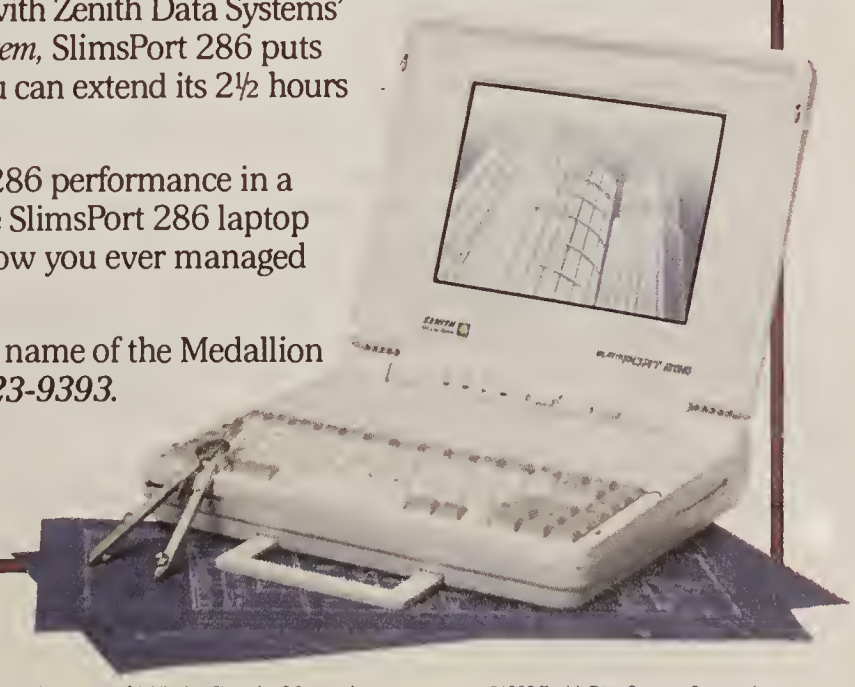

ZENITH data systems
Groupe Bull

*Source: 1990 Dataquest estimate for U.S. battery-powered laptops. Graphics simulate Microsoft® *Windows™ version 3.0,* a product of Microsoft Corporation. *Intelligent Power Management* is a trademark of Zenith Data Systems Corporation.

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MANAGEMENT BRIEFS

Kaiser takes on new IS director

Philip Newbold has been named to succeed **Neil Bell** as director of information services at the **Kaiser Permanente Medical Care Program**'s Northern California region, which is based in Walnut Creek, Calif.

Bell retired in January after 22 years at Kaiser, but Newbold is not expected to start until March, the company said last week.

Newbold, 46, was most recently vice president and general manager of business support systems at Bankamerica Corp., headquartered in San Francisco. A manager in the area of financial applications development, Newbold joined Bankamerica in 1986.

Kaiser North operates 15 hospitals and 15 additional health clinics throughout Northern California.

The prepaid health maintenance organization serves about 2½ million subscribers.

The Society for Information Management (SIM) is beginning to review abstracts for its 1991 International Awards Competition for academic papers in information systems.

Authors of abstracts chosen by the selection committee will be asked to submit papers by May 17. Three papers will be chosen for awards, which will be presented at the 1991 SIM annual conference Oct. 6-10 in Chicago.

Gary D. Bell, director of the **U.S. Internal Revenue Service**'s (IRS) Internal Audit Division, has been named Internal Auditor of the Year by the Association of Government Accountants.

Bell directs the development of strategies to assist IRS management in establishing financial systems, providing independent reviews of systems modernization projects and ensuring internal audit systems modernization. He joined the IRS in 1973 and was appointed to his current position in 1989.

WHAT DO THE INDUSTRY'S TOUGHEST EIS CRITICS THINK OF EXECUTIVE EDGE? CUSTOMERS HAVE SPOKEN.

How Customers Rated The "Big Three" *

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Varied application shells	7.9	7.0	7.7
Useful online help	7.7	6.1	6.3
Pricing and maintenance	7.5	5.7	6.7

*Based on results of *Computerworld* Survey published July 16, 1990

Industry analysts, the trade press, end users and MIS can be pretty tough on EIS software vendors.

We welcome the criticism. Because it underscores what we've thought all along: Executive Edge is the leading EIS solution in terms of ease of customization, service and support, integrated DSS capabilities and a lot of other product features that matter to our customers.

The upshot of a recent *Computerworld* survey: customers gave Executive Edge the highest scores among the "Big Three" EIS vendors. In fact, Executive Edge scored the highest in more than half of the survey questions, as well as highest in two-thirds of the questions that users rated most important.

Not bad for a DSS software leader that entered the EIS arena only two years ago. In fact, we became the first EIS vendor in history to receive ICP's "Million-in-One Award" when sales of Executive Edge surpassed the $1 million mark after only three months on the market!

Executive Edge has been well received for a very good reason. It's a true Executive Information System, one that's easily customized and designed to give top executives crucial strategic information and simple-to-use, AI-based decision support tools that enable executives to analyze and explain business trends with the click of a mouse or by using an infrared remote control unit.

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Bernie Campbell
EIS operational sponsor and director of Information Services, Sonoco Products Company

"The Scorecard system (a custom-ready application delivered with Executive Edge) was something ideal for our needs. We wanted to install a customized prototype of an EIS that we could deliver to our managers quickly."

Joyce Tomboulian
Financial Planning Systems Project Leader, City of Calgary, Alberta

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Failure Analysis

CONTINUED FROM PAGE 63

for accuracy in its research has spread throughout the years, it was the advent of the personal computer that really gave the company the boost it needed to expand, McCarthy says.

"When I first got to this company in 1978, there wasn't a single computer here," he says. "About half the staff used computers for scientific work back then, but they used Stanford University's IBM 3081 mainframe for everything."

It wasn't until 1982 that Failure Analysis purchased its first computer, a Digital Equipment Corp. VAX 11/750 with 16M bytes of memory, McCarthy says.

Now the company has more than one computer per employee and has invested almost $11 million in hardware and software. Failure Analysis has more than 500 employees throughout its Menlo Park headquarters, a test site in Phoenix and several offices in the U.S. and abroad.

TO RECORD THE accident or failure as accurately as possible, engineers use high-definition video and other high-technology equipment.

Desktop systems installed at headquarters include hundreds of Intel Corp. 80386- and I486-based IBM Personal Computers and compatibles, Apple Computer, Inc. Macintosh computers, Hewlett-Packard Co. workstations and Sun Microsystems, Inc. Sparcstations.

There is also a Vaxcluster with five VAX systems, an IBM 3083 mainframe and a total of 64G bytes of hard-disk storage. Much of the memory on the IBM 3083, Subbaiah says, is used as storage space for Failure Analysis' clients using the company's newest service, a customized computer information system.

This application allows Failure Analysis to act as a specialized IS management company. Failure Analysis takes a client's data and organizes it with cross-references for every piece of data so the client can find virtually anything with a one-word search, Subbaiah says.

"It is not uncommon for our system to have 100 clients accessing their customized systems that are stored in our IBM mainframe at any given time," McCarthy says. Clients who subscribe to the special program can also access information on the company's internal databases, which include 15 years of data in some cases.

Because Failure Analysis depends on computers for virtually everything it does, it is perhaps more willing than most companies to rely solely on computers to get the job done. That way of thinking has led to some pretty ambitious goals for IS. McCarthy says that within five years, he would like to eliminate paper altogether.

"We're toying with the idea of having a high-end workstation — possibly reduced instruction set computing-based — on every employee's desk, connected to a centralized network with shared data resources," he says. "Each of the networks in our offices would then be connected to an overseeing mainframe center.

"Our philosophy here," McCarthy adds, "is that if it's on paper, it's lost."

Let's make a deal

Better bargaining skills help IS managers traverse the tricky thicket of user and executive demands

BY ALAN RADDING

When Bill Donner first came to Key Tronic Corp. in Spokane, Wash., he soon realized that information systems project priorities were determined by a combination of politics and the "squeaky wheel syndrome."

"It was a question of who you reported to," says Donner, vice president of IS. "When MIS reported to finance, financial projects got done first. What was left went to whoever screamed the loudest."

Indeed, in many organizations today, squeaky wheels and political pets still get much of the "grease." But as IS becomes more critical to strategic missions and budgets tighten, some managers and consultants are questioning whether there are better ways of setting IS priorities. Many are also honing negotiation and bargaining skills to better navigate the tricky thicket of user, executive and steering committees.

"It's a problem of allocating scarce resources," explains Sid Diamond, vice president of worldwide information services at Black & Decker, Inc. in Towson, Md.

Some IS chiefs survive by juggling vocal users or setting firm priorities. At Key Tronic, for instance, Donner invented a three-phase system (see story page 73) for establishing priorities. Diamond categorizes each request as discretionary, mandatory maintenance or mission-critical, as defined by top management.

Along with the standbys of partnering with business executives, more IS executives are learning new approaches. A few rules include the following:

Rule 1: Negotiate from a position of strength. Effective negotiation builds on IS credibility and respect, users and consultants say.

If IS is considered an obstacle to be overcome, the IS manager has no negotiating clout. True, he may win battles through force, but he'll lose the war and never be able to achieve real partnering.

"Unless we enable [users] to be successful, they will ignore us, go around us — or get rid of us," explains Jerry Weinstein, director of corporate MIS at Lyndhurst, N.J.-based General Instrument Corp.

Conversely, managers say, successful projects can do wonders for IS credibility.

For example, John Tanner, director of IS at Penrose-St. Francis Healthcare Systems in Colorado Springs, used money from his own budget to buy a laser disc storage system for his firm's business office. "What we save just from microfiche conversion will pay for it," he says. "And it will help [users] understand that we're working for their good."

IS managers agree that having a reservoir of goodwill is valuable when working on politically tricky cross-functional or multidepartmental systems.

Rule 2: Master the business. For many IS managers, this is familiar but crucial advice. Effectiveness in negotiation is closely tied to understanding the business' goals and language, advises John Nevison, chairman of Oak Associates in Concord, Mass., who teaches negotiation at the Boston University Center for Project Management.

Despite endless warnings to steer clear of technical jargon, Nevison says, many "IS managers still talk about millions of instructions per second and CPU cycles rather than measurable business performance."

Some managers, however, have mastered the business-oriented approach. "We no longer focus on [return on investment]," Donner says. "That was good for the 1980s, not the 1990s. Now we talk about corporate objectives and missions."

Frank Scafidi, director of patient management and financial systems at Johns Hopkins Hospital in Baltimore, Md., not only participates in corporate strategy sessions but also brings his project managers up to speed so that they are informed when they deal with users.

"I read all the strategic plans and disseminate the nonconfidential stuff to the staff," he says. IS supervisors and the managers who negotiate project priorities can then raise the discussion beyond politics.

At Penrose-St. Francis, Tanner's knowledge of the business paid off when he negotiated with all the clinical departments over implementation of a $7 million integrated patient care system.

Tanner found himself talking about technology in terms of medical risk management through better documentation

Continued on page 72

Robert Barros

Key Tronic's Donner: *In many organizations, priority for IS service goes to the squeakiest wheel. His solution: an executive committee to review projects*

Radding is a free-lance writer in Newton, Mass.

INSIDE

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Never say never
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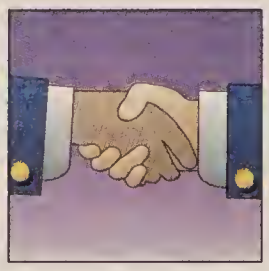
and health care cost containment.

"Staying on top of the business aspects is a full-time job for me. I have to learn their business and spend a lot of time listening and talking. It's gotten to the point where I depend on managers below me to do the IS job," Tanner says.

Rule 3: Develop negotiation skills. Armed with goodwill and business smarts, IS managers are in a better position to negotiate.



Understanding the nature of negotiating is an important start, says Bud Mathaisel, managing director at Ernst & Young Center for Information Technology and Strategy in Boston. "People may misunderstand negotiation," he says. "It's not horse-trading. It really means using diplomacy to be convincing."

Unlike negotiations with vendors, Mathaisel adds, you "can't walk away from your users."

Howard Miller, assistant vice president of administrative computing at Boston University, says negotiation gives him more clout than playing the political power game. By not setting priorities, Miller says, users do what he wants while believing they are doing what they want.

Once negotiations begin, experienced managers say, it is often wiser to act more like an educator than a hard bargainer. "I approach priority-setting as a colleague rather than as a tough business negotiator," says Bob Hodge, chief information officer at Taylor University in Upland, Ind. "I use it as an opportunity to teach them, to bring them to the point where they see the larger view. It sounds idealistic, but it works."

"People still don't understand the IS process," adds Richard Smith, director of information services for Snohomish County in Everett, Wash. "They think things happen magically. You have to take the time to help people understand rather than getting frustrated with them."

The key to any negotiation, Nevison says, is avoiding a situation in which there is a winner and a loser. Instead, reach an agreement everybody can live with. "A good agreement is better than no agreement for all parties involved, " he says, even if it is not the ideal agreement from an IS standpoint.

Rule 4: Work toward partnership. Some consultants and academics, however, note that negotiation is just the first step. They say IS must also develop partnership-building skills.

"Negotiation suggests competing interests. The real question is how IS can develop a true partnership from the beginning," says Lynda Applegate, a professor at Harvard Business School in Cambridge, Mass.

Unfortunately, negotiation and partnering skills don't come naturally to most managers, notes Leslie Ball, a principal at Index Group, Inc. in Cambridge, Mass.

To illustrate, Ball cites an exercise in which managers are asked to draw pictures of their concept of the IS/business team. Typically, he says, the pictures show a bus going off a cliff or two separate stars in the sky. "The pictures clearly show these people are not working together."

Subsequent exercises focus on helping both managers see their shared stake in the success of the larger enterprise.

Rule 5: When all else fails, play politics. When negotiation and partnering aren't possible, IS must play politics. "We've done dumb things that would bear no fruit because it was politically smart," Key Tronic's Donner says.

However, he adds, once the credibility of IS is established, you are less subject to raw political pressure. "Once you are credible, you are freer to communicate with the business managers," Donner says.

However, Bell warns, there will always be some political pressure in even the best negotiations. Since you can't eliminate it completely, expose it. "Make people realize that the politics are there," he says. "Then, try to take the personalities out of the process. Focus on the issue, not on the person." •

Silver tongue

Your chances of becoming an effective negotiator are best if you follow these steps, according to John Nevison, chairman of Oak Associates in Concord, Mass., who teaches negotiation at the Boston University Center for Project Management.

- Do your homework so you can talk in specifics about cost, payback and business goals.
- Present your case in terms of business, not technology, and make an effort to see the user's side of the story.
- Work toward an outcome that is spelled out concretely and to which all parties are committed.
- When the negotiations are finished, make sure you're in a position to negotiate another agreement. In other words, don't burn your bridges.

ALAN RADDING

Tips on making trustworthy deals

Celebrity negotiator Bob Woolf advises would-be wheelers and dealers

No one would accuse this Woolf of wearing sheep's clothing. Bob Woolf, sports and entertainment attorney and professional negotiator for the likes of Larry Bird and the New Kids on the Block, can play but says the way to succeed in negotiations is to be honest and realize that a negotiation is not a conflict.

Woolf, a practicing lawyer for 38 years and a celebrity in his own right, has negotiated with such infamous deal makers as Donald Trump, ABC News President Roone Arledge and owners of major professional sports teams, who have made Woolf's clients among the highest paid in their fields. In all, Woolf has negotiated more than 2,000 contracts for professional athletes alone.

Last fall, Woolf's book, Friendly Persuasion: My Life as a Negotiator, *was published by G. P. Putnam's Sons of New York. He recently spoke from his Hollandale, Fla., office with* Computerworld *Senior Writer Alan J. Ryan on proven techniques for effective negotiation.*

Q: What are the mistakes that inexperienced negotiators commonly make?

A: Most of them start off thinking it has to be a fight. The important thing is being prepared and understanding what you are saying and making sure it is sound and reasonable. If it is outlandish, you don't deserve to have the agreement.

Do you apply different principles to different types of negotiations?

I've discovered that a negotiation is a negotiation no matter what it is — no matter what the stakes are. The same basic principles are used.

Your book has 101 tactics, techniques and strategies for negotiating — what are your personal favorites?

Let them make the first offer, try to get as much information as possible and let them make the first suggestions. If you come out with yours right away, you've already tipped your hand.

I would say the most important tip is, "Don't split the difference." Every negotiation always comes to, "You're here, I'm there; let's meet in the middle." I always say, "Gee, I can't do that." Why? Because I already have them meeting me in the middle. So, the worst I'm going to get is meeting with them in the middle.

If they say, "You're asking $100,000, I'm saying $80,000; let's meet in the middle," I'll say, "I can't do that, but make it $94,000." They might say, $92,000, and I've made $2,000.

What about dealing with internal clients who constantly ask for more than you can give them?

Be honest and decent and forthright, and explain, "This is as far as we can go within our structure." But try to make the other person feel special and try to be sympathetic to the other person's problem. I'll say, "Tell me your problems, and I'll see if I can help." Now, all of a sudden, we are partners.

Henry Hilliard

Bob Woolf: *'Trust is very important. If you develop a trust, negotiation is like nothing . . . Don't violate it'*

Do you find that companies take the time to train their employees on how to negotiate?

It is amazing how corporations will let anybody go out and negotiate, just assuming they know how to negotiate.

Some people are just not temperamentally prepared to negotiate properly.

When making a deal with someone powerful or a superior, should the negotiator try to be assertive?

A lot of people say, "I am dealing with a CEO, so I had better be rough on him to show him where he stands." But don't take that attitude.

Take the attitude that you want to go forward. "Where can we find a common ground so that you are satisfied and I am satisfied? I am not trying to beat you. I am not trying to win over you. I am not trying to show you that I am smarter than you are and all that. We are just trying to reach something amicably."

Is language important in negotiation?

Everything, in the way it is expressed, is important. I hate the word "demand." You can say the same thing and get a wonderful response by saying, "These are my suggestions. Could you live with this?" The response will be kindlier.

Are there any ways you can help move the balance of a negotiation in your favor?

You can give them one reasonable doubt about why they should be going in a different direction, and you have a better chance of making your own agreement.

What if people on the other side of the negotiation turn nasty?

They will say things that are negative in order to lower expectations. They don't really believe it, but they will say it because it has a psychological effect. You have to counter with what is factual and what isn't.

What is the most important feeling to get out of a negotiation?

Trust is very important. If you develop a trust, negotiation is like nothing.

I was in Egypt, and there was a fellow out there at the pyramids who was obviously an Egyptian. He was running around and calling to everyone, "Howdy, pardner," wearing a cowboy hat and pretending to be a cowboy. He had me step aside, opened up his coat, and he had about 44 watches up and down his arm! And he says, "Hey, pardner, you can trust me. You can buy my watch because I'm a fellow American." I say, "No kidding! Where are you from?" He answers, "I'm from Houston, Dallas!"

Trust is very important — don't violate it. •

How one IS manager KO'd politics

BY ALAN RADDING

After five years, Bill Donner, vice president of information systems at Key Tronic Corp. in Spokane, Wash., says he has devised a surefire, politics-busting process for negotiating project priorities.

As things now stand, squeaky wheels must justify what they want in terms of corporate objectives and then find someone to put his money where his mouth is. Donner did the work in steps:

• **Phase 1:** First, he established a steering committee. At this stage, the committee lacked real involvement and simply rubber-stamped IS decisions.

"It was a one-way street. They didn't meet often. They didn't question us about objectives. We'd just tell them what we were doing," Donner recalls.

Behind the scenes, it was politics as usual.

• **Phase 2:** The next step was to increase involvement by the steering committee. Donner set up a business analyst/advocate to correspond with each business function. Discussion shifted to cost/benefits, but Donner was still unhappy with this arrangement.

"Responsibility got relegated too low. The analysts knew their area, but they lacked corporate insight. They didn't have a sense of the corporate direction," Donner says. "Without reference to corporate goals, the strongest business function analysts got what they wanted."

For example, cost/benefit analyses were reviewed in a vacuum. Eventually, analysts became just another squeaky wheel.

• **Phase 3:** Next, the steering commitee was replaced by an executive committee and vice president willing to fund a portion of the proposed project. Now each project is analyzed and justified not only in terms of return on investment but also according to how it helps the particular department fulfill its role in the overall corporate strategy.

The executive steering committee "gets together, looks at goals and sees dependencies between strategies," Donner explains. The result "is a dialogue — not screaming or a squeaky wheel," out of which comes the IS priorities.

The new executive steering committee takes the political heat off Donner and the IS department. When painful tradeoffs in the timing, scope or resources of a project have to be made, the executive committee makes the decision based on the corporate strategy.

"It's improved my customer relationships," Donner says. •

Never say never

Experienced negotiators say the touchiest problem in the process is when an IS manager has to reject a user's request. "Our challenge is to never say no to a client," says Ronald Cybyske, senior vice president of development and operations at Banc One Services Corp. in Columbus, Ohio. However, when Cybyske does have to say no, "we do it very tactfully."

Ideally, Cybyske's managers get other users to make it apparent to the client that the request isn't feasible. "We'll play requests off other clients. We'll ask if this [request] would also make sense for them. If they say no, then we'll ask the client if he'll fund it himself," he says. The client invariably backs off.

Howard Miller, assistant vice president of administrative computing at Boston University, never says no. "It's not my call to tell them they can't have it. I'll go to inordinate lengths to discourage them, but I'll do anything if they'll pay for it."

John Parady, executive vice president of technical services at the Pacific Stock Exchange in Los Angeles, shoots down requests by explaining why in terms the user can understand: cost, payback and business objectives.

The best strategy is to avoid getting into a situation in which the IS manager has to square off alone against a client over a project. Sid Diamond, vice president of worldwide information services at Black & Decker, Inc. in Towson, Md., finds users whose projects have been put on the back burner. "You want to work in concert with other users to try to avoid a confrontation," Diamond says.

Negotiation — not confrontation — is the key, says Dale Fieldcamp, director of corporate information services at Caterpillar, Inc. in Peoria, Ill. "You want discussions so that it becomes self-evident that the project isn't right." Then IS never has to say no.

ALAN RADDING

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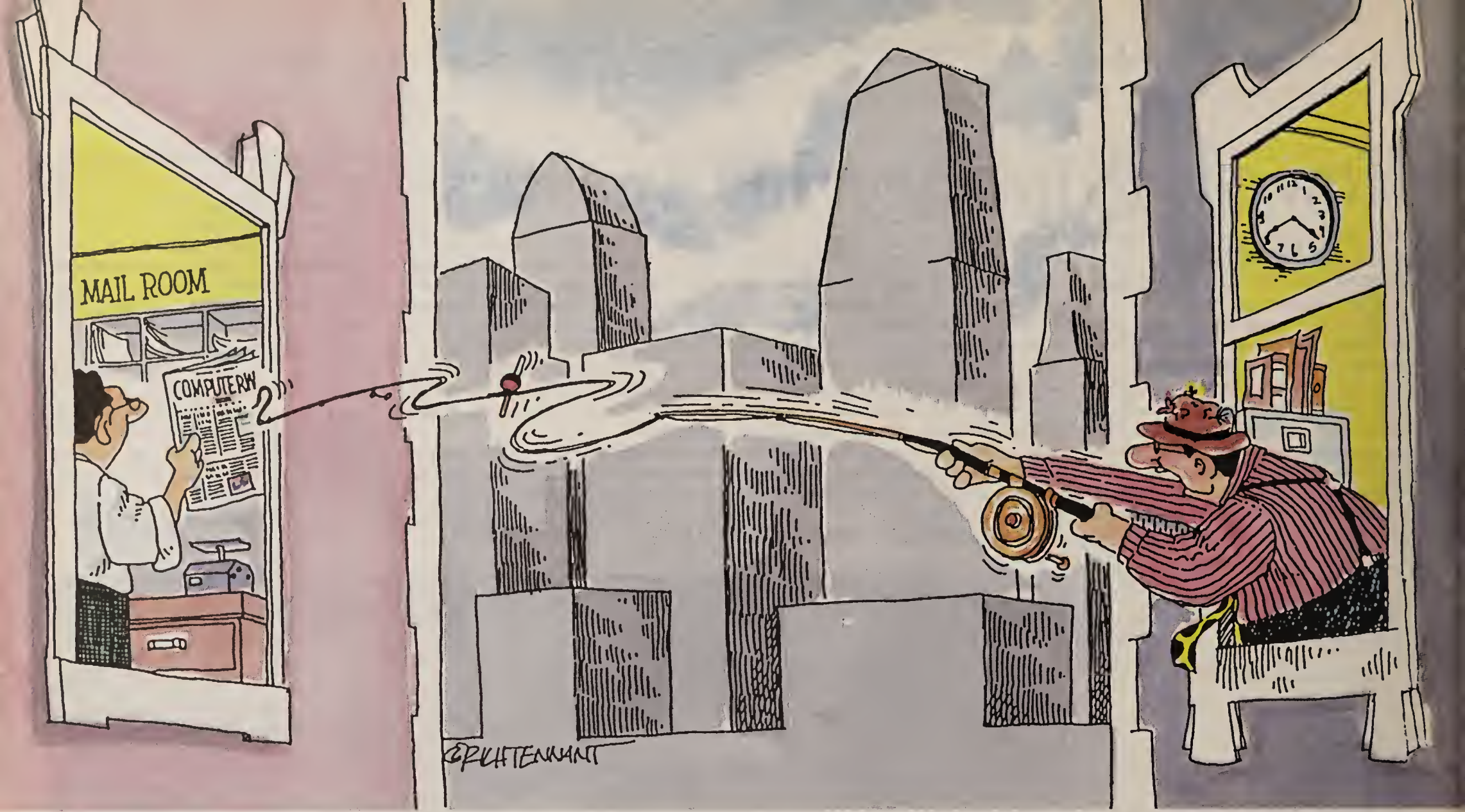

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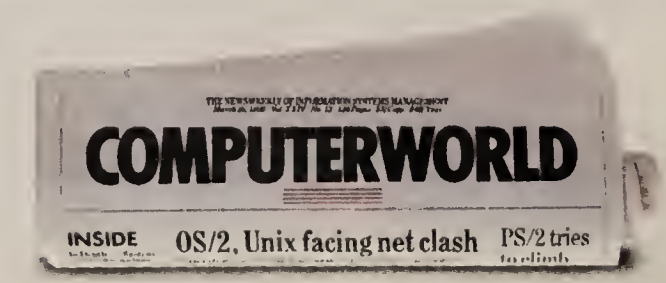


The Newsweekly of Information Systems Management

Evaluate, don't procrastinate

Seven steps to sizing up user application requests

BY LARRY M. SINGER

There is no quicker way to bog down the workings of the information systems department than to constantly postpone small application projects. Most major backlogs begin with minor change requests from users IS puts off or ignores. Routinely shelving user requests guarantees frustrated users, poor business applications, obsolete systems and management concern.

IS needs to set up a responsive evaluation process that can make IS and user areas more productive and improve the user/IS relationship.

Efficient management of user requests — maintenance fixes, system enhancements, new reports and small applications — improves IS productivity by doing the following:

- Reducing the need for large, costly projects that "replace an application" simply because the system has not been maintained.
- Enabling problems to be solved without IS resources.
- Providing a way to effectively use technical resources idled during slack periods.
- Delivering small but beneficial enhancements to users.
- Educating users in IS life cycles and procedures to help them work more effectively with IS on large development projects.

Putting in place a better evaluation process can also dramatically improve the perception of IS in the user community. Users often view IS as the black hole of requests. When IS managers finally do complete a request, users are often dissatisfied because it's not timely or it's not exactly what they need.

In fact, many IS shops treat requests for application service as if the poor user were trying to purchase a can of custom-mixed paint at the local discount store: "You want a change to the order-entry system? Well, we can't do it right now, but because we're so nice, just fill out this handy-dandy form, and we'll get back to you in a few months, or maybe years. Don't call us; we'll call you. Thank you for shopping internal IS. On your way out, pick up our *Evils of Outsourcing* brochure. Next!"

Quick request response

The most effective way of dealing with user requests is to concentrate on a "quick response" approach to receiving, evaluating and prioritizing service requests. User-request evaluators must be the best and the brightest (see test page 76). They should be business partners with the authority to make decisions and commitments rather than simply taking orders.

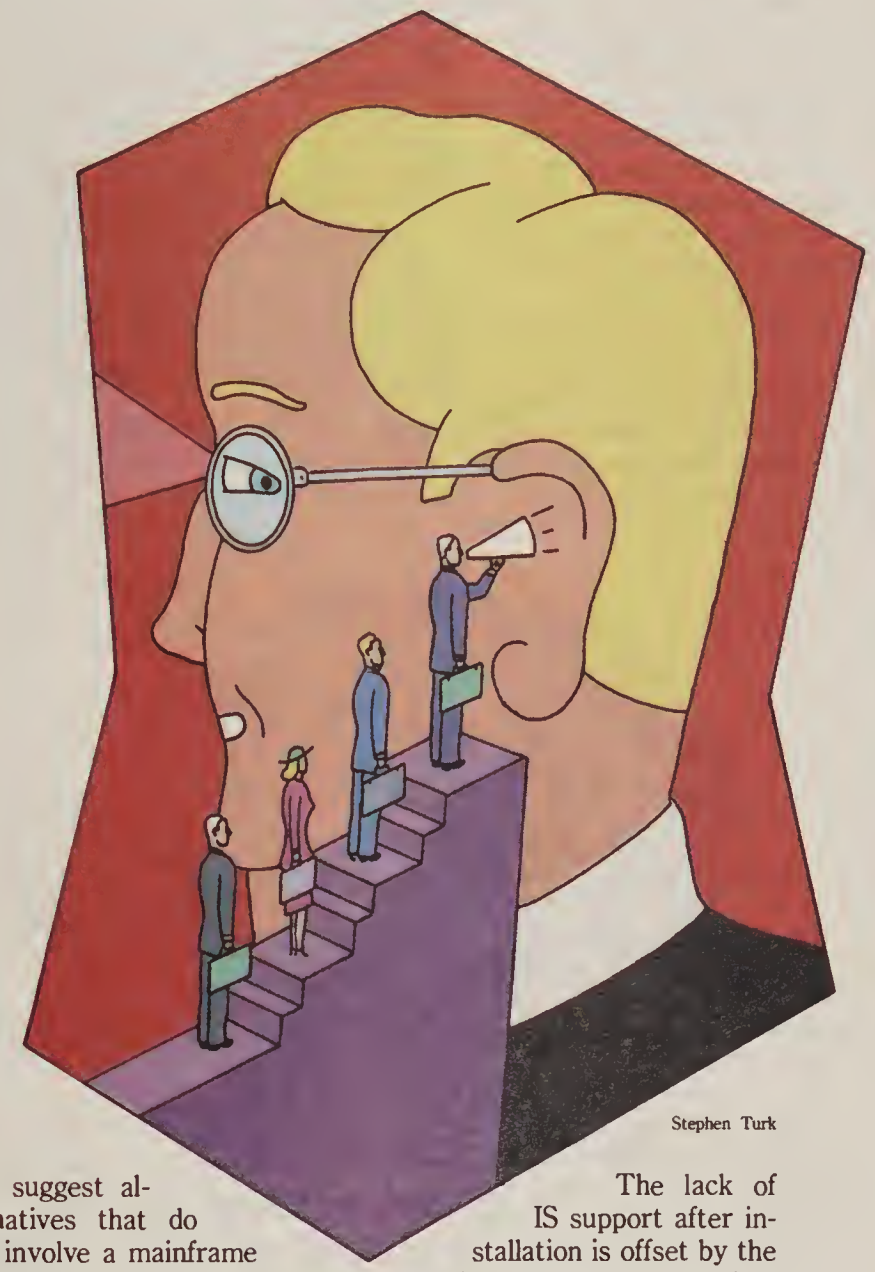
The following guidelines form the basis of a quick response service evaluation process:

1 *Before recommending an information technology answer, first look for immediate, low-cost non-IS solutions.*

Users come to IS because they want help with a business problem, not because they automatically need a system change. A knowledgeable IS evaluator can suggest alternatives that do not involve a mainframe or minicomputer.

For example, here's how savvy evaluators would handle the following request:

A user wants to check addresses of test market customers and verify their ZIP codes. Instead of an expensive, mainframe-based application, the evaluator recommends checking personal computer shareware catalogues for a package that edits cities against ZIP codes.



Stephen Turk

The lack of IS support after installation is offset by the package cost — less than $100. By helping the user send a facsimile of the purchase order to the software firm and then loading the software, IS can have the program up and running in less than a week.

2 *Explore other areas or departments that have the information the user needs.*

Some requests can be

Continued on page 76

Singer is the author of two books and various articles on information technology. He lives in Columbus, Ohio.

- **'Quick response' method**
- **Making IS productive and users happy**
- **A business partner personality quiz**

Continued from page 75

satisfied with reports, screens or data from other departments. Interdepartmental cooperation is something the evaluator should nurture, because this sharing benefits everyone. When users all have a common source of data, it enhances communication.

Furthermore, a small tweak to an existing system — with the permission of the owner — is preferable to and cheaper than creating an entirely new system.

For example, the accounting department may have an on-line item inquiry screen that can display information needed by the production control staff, or perhaps the accounting screen needs only a few additional data elements to provide the data the production control staff is looking for. By making use of existing resources, IS can satisfy the user, avoid unnecessary application enhancements and reduce application redundancy.

3 *Understand the why of a request rather than accepting a casual explanation from the user.*

The underlying reason for a request seldom comes through on a form or on the telephone. Getting to the root of the request can suggest alternatives or clarify the request. The IS evaluator can often inject a note of common sense into an otherwise irrational situation.

For example, if the accounting manager requests a new report to identify purchase price variances, it may be because she really wants the data for the operations vice president, who is concerned about supplier problems. After researching the situation, the business partner notifies everyone that the new general ledger package will have a specialized supplier tracking report in 12 months.

The evaluator has discerned the reason behind the request and has suggested the option of waiting rather than creating a new report. Solving problems is more profitable than reporting them.

4 *Know when doing the work would take less time than adding the request to the official backlog.*

Restrictive procedures can require an analyst to spend more time filling out paperwork than it would take a programmer to make the change. Rigid IS policies often force a simple request to lie in a backlog when it could be placed in a "ready pool" to be completed as time permits.

Every programming group should have a file of simple, low-risk — but obviously justifiable — application system changes they can tackle during slack periods. Despite the many first-line managers who protest that projects are so carefully planned that idle time never occurs, such interruptions are inevitable: A programmer may have to wait several hours for test data sets to be allocated, for instance, or an analyst could be forced to wait for a user to come back from vacation.

5 *Reject the myth that any request labeled "fix the problem" must be done. Separate critical needs from cosmetic changes — and don't be afraid to make the distinction.*

IS evaluators should approach applications development as a limited resource. They must stand ready to assist users but not squander technical staff on projects or requests that have little value.

The same holds true for maintenance. Application systems may contain errors, but the cost of fixing an error must be weighed against the benefits.

Let's say the billing supervisor discovers that an infrequently used pricing routine has been undercharging for several years. Only one customer is on that particular pricing option, however, and it is unlikely that any other accounts will ever be. To remedy the situation, billing clerks have been manually correcting their weekly invoices.

The IS evaluator estimates that the glitch's current impact on the billing department is negligible. He weighs this against the fact that it would take several work weeks to correct and test the complex logic. The problem may be annoying, but annoyance is not necessarily automatic justification for change.

There is a qualitative difference between a program problem that causes an incorrect value on a report and eventually affects decision-making and a problem that results in a cosmetic screen error that can be corrected manually with minimal effort.

6 *Don't be afraid to build "throwaway" application systems to meet particular business needs.*

An unchallenged theorem in IS states that application systems must be perfect and long-lasting. Therefore, they must meet the highest levels of documentation, standards, recovery and flexibility. There are, however, occasions in which a simple, quick and discardable computerized solution is the answer to a time-critical business need. "Throwaway" is not necessarily a bad word.

If the user explains he needs a barebones customer response tracking system running in less than 30 days, a comprehensive system that would take nine months to prepare would be of little value.

It's not sufficient for IS to say, "Sorry, I know the test market starts in 30 days and this new product is important to our company's survival, but the database design alone would take at least a month."

The business partner who looks at nontraditional approaches may suggest a "quick and dirty" PC-based program to capture the responses in less than 30 days. However, only one telemarketing representative could work on the survey at a time, he would have to work from printed customer lists, and there would be no program enhancements.

Still, a partial solution that is ready on time is almost always better than a complete solution that never arrives.

7 *Look for solutions to problems or opportunities the users have not yet asked for.*

Users typically come to IS with only a fraction of their requests. The rest languish in a "hidden backlog" because users either are too busy to write them up or do not believe IS can work on so many requests. The business partner should use any spare time to roam the user areas and look for needs IS can meet.

The benefits to the company of unearthing these application gems can be great. Furthermore, some can be completed with little or no IS effort: A good evaluator may notice order-entry clerks continually calling customer credit to obtain authorization numbers. He may suggest that these clerks get authorizations themselves by accessing credit screens. This speeds clerk response time and improves customer service. Training would take an hour.

When setting up an evaluation mechanism, companies must realize that the introduction of an evaluation process cannot take place in a vacuum. It requires management support as well as an IS department that buys into the idea.

User evaluations should no longer be approached as mundane, paper-shuffling undertakings. Evaluating users' requests for service should be an important part of systems work. •

The IS evaluator personality test

It takes a certain type of IS person to act as a user request evaluator or business partner. See how you and your staff measure up by taking the following **very** *unscientific test*

Check the following traits that describe you:

1. ☐ Knowledgeable about current systems
2. ☐ Ignorant about current systems
3. ☐ Creative about business solutions
4. ☐ Unimaginative
5. ☐ Flexible about procedures
6. ☐ Rigid
7. ☐ Excellent communication skills
8. ☐ Poor communication skills
9. ☐ Self-motivated
10. ☐ Unmotivated
11. ☐ Politically sensitive
12. ☐ Politically obtuse

For the next questions, circle *yes* or *no*:

Can you deal with complicated tasks within a tight time frame? **yes** **no**

Do you work well under pressure? **yes** **no**

Do you work well with users? **yes** **no**

Do you receive gratification meeting users needs? **yes** **no**

Is paper pushing an anathema to you? **yes** **no**

Do small requests have as much clout with you as major projects? **yes** **no**

Are you willing to let others take the spotlight? **yes** **no**

If you checked a majority of the odd-numbered traits and circled "yes" to the questions above, then you've got what it takes to be an IS evaluator and business partner.

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NATIONAL
BRIEFS

Novell settles

▶ Novell, Inc. has agreed to pay $100,000 to an unspecified number of its shareholders who sued last year to halt Novell's proposed merger with Lotus Development Corp. The agreement, covering attorneys' fees and expenses, came Jan. 22 after lawyers for the plaintiffs requested their case be dismissed. Five class-action suits were filed in the Court of Chancery in Deleware just after the proposed merger was announced April 6, 1990. The merger fell apart when Novell demanded more control of the combined entity.

Quick step up

▶ IBM executive **Ned Lautenbach**, who last month stepped up from his post as general manager of the company's Application Solution line of business to senior managing director of IBM's Asia Pacific operations, seems to be making promotion a monthly affair. Last week, Lautenbach was named president and representative director of **IBM Asia Pacific**, taking over the helm of the key territory from IBM Vice President **Edward Lucente**, who will leave the firm March 1 to become senior vice president of marketing at **Northern Telecom, Inc.**

New lease on Europe

▶ Independent computer leasing market leader **Comdisco, Inc.** pumped $75 million into its European operations last week, bringing total capital investment in its European leasing ventures to $112 million. The company has reason for its high hopes for the European leasing market: In fiscal 1990, according to recently released figures, the firm's lease base across the Atlantic grew from about $600 million to $1 billion.

Cuts across the board

▶ Hedging against a first-quarter deficit triggered largely by shortfalls in payments from economically battered OEMs such as **Unisys Corp.**, systems vendor **Sequent Computer Systems, Inc.** has implemented a onetime, companywide pay reduction plan. The program holds back approximately one week of pay per employee over a seven-week period. Sequent is banking on this measure to save an estimated $1.5 million to $2.0 million.

Cray spin-off unfazed by losses

Technical successes have lessened the impact of Cray Computer's losses

BY ELLIS BOOKER
CW STAFF

COLORADO SPRINGS — What does it take to faze Cray Computer Corp.? Whatever it is, it apparently is not slipped schedules or reported losses of more than three times its annual revenue.

More than six months behind schedule for showing a prototype of its next-generation supercomputer, Cray reported a net loss of $46.4 million last month on revenue of $13 million for 1990.

However, officials at the supercomputer supplier, which was spun off from Minneapolis-based Cray Research, Inc. in 1989, said they were not frazzled by either the production delay of the Cray-3 or the financial situation.

"We built a foundry last year to supply our own chips, and we redesigned our circuits... There's a six-month delay there," President and Chief Executive Officer Neil Davenport said. No supercomputer has ever been delivered on time, he said.

Indeed, the 16-processor YMP/16, the machine Cray hopes to demonstrate by year's end, was originally named the C90 and was expected last year.

The company was created under the leadership of Seymour Cray, who left Cray Research, the firm he co-founded in 1989, to pursue a supercomputer architecture based on gallium arsenide semiconductors. While difficult to manufacture, gallium arsenide chips consume about one-third the power, withstand higher temperatures than and are theoretically capable of five or six times the performance of silicon devices.

Davenport said he expects to have a working prototype assembled this summer and plans to deliver the unit to Lawrence Livermore National Laboratory by the end of the year. To date, Cray has demonstrated a 32-bit foreground processor running at 500 MHz. The foreground module tells the background module what to do; the background processor does the computing.

Analysts watching Cray said it has scored some technical successes that have lessened the impact of its year-end loss.

"The financial situation [for Cray] is not as painful as it might have been," said Jeff Canin, an independent analyst in San Francisco. One year ago, Canin said it was vital that the company hit its manufacturing targets to keep its investors happy [CW, Feb. 26, 1990].

It is significant that Cray is claiming a far better yield rate for its gallium arsenide chips than it had budgeted originally, according to Canin. "They'd internally budgeted yields of 20%, but because they brought the [fabrication] in-house and simplified the circuits, they are getting consistently over 50% yield."

This will lower the unit price of the gallium arsenide chips and quicken the rate at which Cray can enter full production, Canin said.

While Davenport declined to confirm these numbers, which he called misleading, he did say his company was achieving much better yields than expected.

Also helpful for Cray has been the accommodation of Cray Research, which extended the payout term of a $100 million note toward the development of the Cray-3 by six months.

From the beginning, the two Crays have faced different challenges. Although Cray may face a financing crunch, it does not have to defend the desirable territory of Cray Research, which, with 262 systems currently installed, is estimated to have between approximately 33% and 60% of the worldwide supercomputer market.

"Demand is not going to be the issue [for Cray]," Canin said. At its current staffing levels, the company needs to sell just three of its $28 million to $30 million machines per year to be profitable, he added.

Davenport said his cash reserves will take him through the second quarter of 1992, at which point he expects to see revenue from system sales.

Cray Research, meanwhile, must defend itself against low-end competitors such as Richardson, Texas-based Convex Computer Corp. as well as the high end of the market targeted by Cray and Japanese competitors. At the same time, it must make up for a flattening demand for supercomputers in the public sector by increasing its penetration in commercial markets.

Like all computer makers, analysts said, both Crays face "lengthened" sale cycles as potential buyers closely weigh their options in a recessionary economy.

Japanese competition

The long-looming threat of Japanese supercomputer competition has failed to make much of a dent so far in the U.S. domestic market, analysts said.

First, the Japanese lag behind U.S. companies in developing software and multiprocessor capabilities, and foreign competitors face considerable political obstacles trying to penetrate the U.S. with their products.

"The bad news is, there are a finite number of sites" that require supercomputers, according to Gary Smaby, an analyst at Needham & Co. in Minneapolis. Moreover, he added, these users are very sophisticated, tending to show loyalty to performance rather than company brand for their $15 million-plus computers.

"There are going to be a number of competitors for the attention of [80 to 85] existing supercomputer sites," Smaby said. Cray Research, currently the unquestioned market leader, will probably lose some market share in the next product cycle, he noted.

THE OTHER CRAY

Do you know where Cray Computer is?
- Spun off from Cray Research in October 1989 when founder Seymour Cray left to head production of a gallium arsenide-based supercomputer.
- The bad news: reported 1990 net loss of $46.4 million on sales of $13 million; products were six months late.
- The good news: Yield rate for homegrown gallium arsenide chips is outstripping expectations.
- Working prototype of the the gallium arsenide-based Cray due this summer; full production expected by year's end.

Seymour Cray: *Firm yielding high rate for gallium arsenide chips*

Sales training viewed as competitive tool

BY KATHY PORTEUS
SPECIAL TO CW

"New hire sales training" may not be everyone's idea of a hot topic. However, it absolutely sizzles in the back rooms of a growing number of computer systems and service vendors. Battling steeper competition than ever during a nationwide recession, companies view sales training as a competitive tool that can better leverage internal resources and increase the effectiveness of a field sales organization.

The strategic importance of training has moved front and center with the industry's shift from selling boxes to providing business solutions that involve an array of hardware, software and network products and services. This trend, in turn, is spurring the need to effectively sell "intangibles" such as value and to successfully build close customer relationships. Both shifts turn the spotlight on training.

One sign of the newly critical role sales training plays at some firms is the high level of involvement of senior management in the planning of training programs. At Andersen Consulting and Sun Microsystems, Inc., for example, advisory committees or training and development councils staffed with senior executives determine training priorites and ensure that these reflect current business objectives. "This committee probably spends more time discussing new hire training than anything else," said Herb Desch, managing partner at Andersen Consulting's Professional Education Division.

Companies use a variety of approaches to hiring, training and evaluating new sales representatives (see story page 78). Underscoring the diverse methods and strategies is a recognition that the training process is always evolving.

Continued on page 78

COMMENTARY

Jean S. Bozman

A big brother for Sybase?

To paraphrase Gail Sheehy's watershed book *Passages,* there are two great questions that must be answered after adolescence: Where am I going, and who will go along with me?

Sybase has spent its first five years in the relational database management system industry answering the first question: It wants to go wherever client/server computing leads it. But it still hasn't answered the second, and many industry observers are wondering: Will Sybase be going along with Lotus, Microsoft or both?

Lotus is a Sybase stakeholder. Microsoft is a development ally. Industry speculation that one of the firms will acquire Sybase abounds. Since Microsoft and Lotus executives say the status quo is just fine, only time will tell. However, Sybase executives do have an explanation for the duality of having Lotus as Sybase part-owner and co-marketer —and having Microsoft as co-developer of the SQL Server database engine.

"It helps us preserve our independence," said Bob Epstein, Sybase's executive vice president. "As an investor, Lotus has a direct interest in our success. And I think Microsoft is getting the best benefit of us the way it is. If they owned us, it would foul up their distribution channels." So much for appearances.

It's not hard to see what Lotus and Microsoft get from their ties to Sybase. Porting code has been a nettlesome problem for Microsoft's LAN Manager, analysts report. Sybase serves Microsoft as an advanced technology lab that has already dealt with porting code to multiple platforms. Microsoft also needs Sybase's Open Server gateways to reach Unix networks and IBM mainframe hosts.

To Lotus, Sybase is a marketing partner with database experience and the kind of large-user government contracts that open doors to new business. Together, Lotus and Sybase sales representatives go calling on large clients; Sybase provides systems consulting for Lotus customers who are outgrowing their stand-alone PC applications. As an added draw, Sybase's network management technology and security techniques complement Lotus' desktop spreadsheets and office programs.

Can this double-partnering thing really work? It probably can, for the time being. Microsoft and Lotus aren't complaining, and Sybase, at this point, probably stands to reap more from the three-way alliance than just a hedge against losing its independence to either ally.

On the surface, it seems that Sybase is successfully riding the wave of downsizing mainframe applications for use on Unix processors and beefed-up PC servers. However, reports of slim profit margins trouble some observers, as did a layoff of 50 employees last year. Users at the company's users' conference last month raised concerns about the quality of technical support and about delays in product testing and shipment schedules.

Yet, Epstein used the occasion to outline a five-year plan for Sybase's evolving product strategy, including everything from object-oriented programs to bolting inference engines onto the corporate network.

The forecast was ambitious, especially given the current economic climate. Sybase says that with the right kind of technology partnerships with other firms, it can reach its product goals on time.

For now, both Lotus and Microsoft seem more than eager to help.

Bozman is *Computerworld*'s West Coast senior editor.

Sales

FROM PAGE 77

Increasingly, companies want their sales representatives to be the customer's business partner in making technology-related decisions. As a result, today's training primers spill over with phrases such as "working as teams," "professional" and "consultative" selling. New hire training, therefore, stresses the importance of establishing contacts throughout the corporation and knowing how to effectively use internal resources to help close a sale.

According to John Maxwell, manager of new hire sales training at Digital Equipment Corp., field assignments "get new sales reps to understand the environment they will be working in and the organizations they will be working with as a team." Most new sales representatives at DEC come from within the company and go through a formal five-month new hire training program that combines field assignments and central training at sites in Merrimack, N.H., and Boylston, Mass.

At Electronic Data Systems Corp. (EDS), the training focus is on selling professionally rather than on sales techniques. A piece of business at EDS is defined by how partnerships are built with outside prospects and within EDS and then "marries the two," said Steven P. Leakey, EDS director of sales development.

While firms such as DEC and Sun still use paper-based courseware for self-study training, the trend is toward computer-based training.

According to Tad Bogdan field training and development manager, Sun's self-paced courses have been structured with hypertext/hypermedia technology in mind. Similarly, "Multimedia is the trend that we are seeing and are investing in," Desch said.

Classroom technology

Technology in the classroom is also on the rise. Using interactive video as a classroom tool accelerates learning and engages student interest, said Lee Kleppinger, director of training at Apple Computer, Inc.

Last year, NCR initiated use of the "electronic classroom" in a pilot program. This pilot will be expanded in 1991, Lysiak said, owing to the 15% to 20% learning gain she estimates was achieved through the highly participatory electronic classroom approach.

In this new learning environment, students respond to questions using "response pads." Instructors can gauge how well students are understanding the lesson because the responses feed into their personal computer-based system for immediate feedback.

Bottom-line impact is always a critical consideration, especially during a recession. Essentially, training's return on investment is measured by how well representatives perform in the field. But with many variables at play and a sizeable investment at stake, new hire programs tend to treat evaluation as an integral part of the training process.

In general, evaluations are derived from two sources: graded competancy exams typically given at the end of each training segment and subjective assessments of ability. EDS trainees give oral presentations to senior management panels, from whom they receive candid feedback, Leakey said. Similarly, Apple evaluates trainees through role plays and presentations.

Post training

Determined to maximize their investments and hone their competitive edge, firms are also beginning to implement post-training evaluation as well. Sun, for instance, has begun to test new representatives three months after their formal training is completed to determine how well they have retained and applied information to their jobs, Bogdan said.

While most training evaluations measure the competence of new representatives, the question of what skills and knowledge constitute "competence" is a moving target in the fast-paced computer industry. The frantic forward pace of technology and of customer sophistication and demands can quickly outdate an existing training course and thus lessen the effectiveness of the entire training program.

This factor, coupled with the need to minimize costs while maximizing the "bang for the training buck," is fueling a trend toward training "modules" that comprise one course or a series of courses. The modular approach allows training programs greater flexibility in adapting to changing requirements. In addition, it lets the firms better accomodate the fact that not all trainees need the same type or amount of training to reach the targeted competency level.

To reduce costs and minimize a new representative's time away from the field, self-paced instruction is being used whenever possible. Companies are also attempting to cap training costs by licensing or purchasing third-party courseware, subcontracting segments of training to outside instructors and supplementing full-time trainers with managers from field offices and product divisions.

The next wave of new hire training changes will likely reflect trends such as "just-in-time" training and individualized instruction, made possible in part as computer-based instruction becomes more available and affordable. "Industrywide, a key trend is for training to be delivered in a 'learn what I need' mode rather than 'one size fits all,' " Lysiak said.

Porteus is a free-lance writer based in Centerville, Mass.

How now?

Dwindling customer dollars and tough competition are sharpening sales training at computer firms as a competitive tool

Apple Computer, Inc.
- Hires a mix of recent college graduates and experienced sales representatives
- Training methods include computer-based training (CBT), interactive video, self pacing, role playing and presentations
- Evaluation includes exit testing and performance testing in controlled environments

Digital Equipment Corp.
- Hires internal transfers for sales force
- Training methods include lectures, laboratory exercises, case studies, role playing and field assignments
- Evaluation consists of testing at end of each central training session

IBM
- Hires a mix of recent college graduates and experienced sales representatives
- Training methods include self pacing, CBT, role playing, case studies, practice demonstrations and supervised job-related activities
- Evaluation includes measuring and assessing students on communications skills, presentation techniques, general business knowledge and customer interaction

Standard course menu

It is well and good to tout the strategic importance of training new sales representatives, but even the best programs boil down to a series of courses or modules that companies' new recruits must complete. Though by no means exhaustive, the following sample of courses taught at various computer firms reflects the variety of topics that are emphasized during new hire training programs.

- **Apple**: Local office orientation; company history and culture; product presentation skills; channel and market strategies; differentiation strategies and tactics; local-area network literacy; desktop publishing and presentations; product training; account management development; and selling skills and advanced technical training (i.e., third-party solutions and networking).
- **DEC**: Selling skills; corporate structure and philosophy; company resources; field activities (i.e., interviewing, attending sales calls and studying company's full product line); and test configurations addressing customer scenarios.
- **IBM**: Company policies; IBM products, sales policies, marketing practices and computer concepts; knowing and using the IBM support structure; competitive knowledge; and interpersonal skills.
- **Sun Microsystems**: Self-paced modules, including orientation toward working for Sun; networking; hardware, graphics and visualization; applications environment; software engineering technology; and customer service and satisfaction.

KATHY PORTEUS

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Growing power

▶ **Taiwan** will be capable of manufacturing information technology products worth $28 billion annually by the turn of the century, according to the **Institute for Information Industry**. The republic turned out information products valued at $6.1 billion in 1990, making it the world's sixth-largest manufacturer. According to institute estimates, Taiwan's information industry will grow by 13.5% this year, a 1.5% increase over 1990.

Investing in New Zealand

▶ **IBM** is doing its bit for the **New Zealand software industry** with an equity investment in Wellington-based developer and IBM remarketer **Computer Systems Implementation**. Although neither firm would divulge the exact size or value of IBM's stake, IBM New Zealand's general manager, Fraeme Murray, described it as a substantial minority shareholding.

Cold shoulder

▶ **Esprit**, Europe's influential information technology roundtable, has excluded UK-based **International Computers Ltd.** (ICL) — acquired last summer by Japanese industrial giant **Fujitsu Ltd.** — from membership, in what some industry observers see as the first concrete indication of the icy reception Japanese takeovers will receive from European companies. Meanwhile, the managing board of the **Joint European Submicron Silicon Initiative** project has put off until next month any decision about ICL's continued participation in the project's research into the next generation of super silicon conductors.

An open initiative

▶ The **European Commission** has announced that it will launch a new microprocessor development program in April. The project, called the **Open Microprocessor Initiative**, is expected to last for approximately five years and cost about $397 million. Participants in the Open Microprocessor Initiative project include France's **Groupe Bull**, **SGS-Thomson** and its **Inmos** subsidiary, Germany's **Siemens AG** and Italy's **Ing. C. Olivetti & Co.** and its UK subsidiary **Acorn**. OMI is expected to focus on designing a processor with 100 million transistors that supports Unix — something that even Intel Corp. is not expected to achieve before the year 2000.

U.S./Japan trade agreement wins support

A joint proposal issued last fall by the Semiconductor Industry Association and the Computer Systems Policy Project urging a new U.S./Japan semiconductor trade agreement has garnered an impressive array of computer industry support, according to a statement released by the proposal's sponsors earlier this month.

The proposed agreement would include terms aimed at preventing dumping and seeking an open Japanese market for semiconductors, according to the statement.

The backing has come from a wide and diverse group of industry associations including software and services industry association Adapso, the Electronics Industry Association and the Computer Business Equipment Manufacturers Association.

The show of support is winning the proposal priority attention in Washington, D.C., according to Ken Kay, executive director of the Computer Systems Policy Project.

Meanwhile, Kay added, the unexpectedly united front presented by U.S.-based industry associations will most likely win the plan earlier, more serious attention from authorities in Tokyo.

Colleges seek corporate money

BY MICHAEL ALEXANDER
CW STAFF

Life on campus is not cheap, and the business world apparently must pay the price.

These days, a lot more universities are making the rounds to corporations in hopes of drumming up money for research. While federal funding of university research has increased over the years, it is still not enough to keep up with rising costs and an influx of scientists seeking funding. With the economy on the skids, funds may be even harder to come by.

As a result, many more corporations are being asked to pick up the tab, according to university researchers and their corporate sponsors. Computer companies are among the most active contributors.

It is an old coalition: Industry foots the research bill and in return receives technology that can be turned into lucrative new products. It can also be an opportunity to employ top scientists who do not want to leave the university.

In turn, the university receives royalties for products and funds or equipment to help defray research costs. However, the dire threat of dwindling public dollars leading to a downturn in U.S. technological clout just when an upswing is needed is giving new urgency to the old industrial/academic alliance.

"Every computer science department worth its salt has an industrial liaison program," said John Savage, who is chairman of the computer science department and runs the liaison program at Brown University in Providence, R.I. Eight corporations, including Digital Equipment Corp., Sun Microsystems, Inc. and IBM, pay $35,000 apiece each year to participate in Brown's industrial partners program and to swap technical knowledge with Brown's computer scientists. DEC's recently introduced Fuse for Ultrix, a Unix programming environment, came from research that was conducted at Brown.

Corporations still contribute only a small percentage of the money universities spend on research. Last year, for example, corporations provided about 6.6% of the $15 billion universities spent on research. However, that amount has risen dramatically during recent years, according to the National Science Foundation (NSF). Last year, universities spent close to $984 million worth of corporate cash, up from $293 million in 1983.

MIT, the Georgia Institute of Technology, Carnegie Mellon University and Cornell University are among the top recipients of corporate cash, receiving close to $100 million last year, the NSF said.

DEC is sponsoring 300 research projects at 150 universities and research centers around the world, said Jack McCreadie, director of DEC's external research program. Funds, equipment and other forms of participation amount to tens of millions of dollars per year, he said. "We're not in this for goodwill," McCreadie said. "What we get for our support is a license to technology."

Several important products have been spun out, including Decwindows interface, a variant of the X Window System interface developed at MIT, and Ultrix, DEC's flavor of the Unix operating system developed with input from the University of California at Berkeley.

US West Communications, Inc. gave Ron Cole, a computer scientist at Oregon Graduate Institute of Science & Technology in Beaverton, Ore., $230,000 to further his work on English Alphabet Recognizer, a neural network system that recognizes spoken letters. US West hopes the system can be used to automate telephone directory assistance. "Every second shaved off any directory telephone call can save a [telephone] company $5 million to $10 million," Cole said. The project has also received about $200,000 from Apple Computer, Inc., the NSF and an Oregon state agency.

U.S. pays price for tight funds

University researchers are strapped for funds and, as a result, the U.S. is falling behind in the world's technology race, a Nobel laureate said recently at a press conference called to publicize the problem.

Although Congress has voted for significant increases in research dollars and has favored science over other areas of the budget, there is a shortfall of some $10 billion per year, said Leon Ledermann, a physicist from the University of Chicago and the president-elect of the American Association for the Advancement of Science. "Twenty years of neglect have caught up."

There is little prospect that the government will significantly increase science funding during these troubled economic times, Ledermann said.

MICHAEL ALEXANDER

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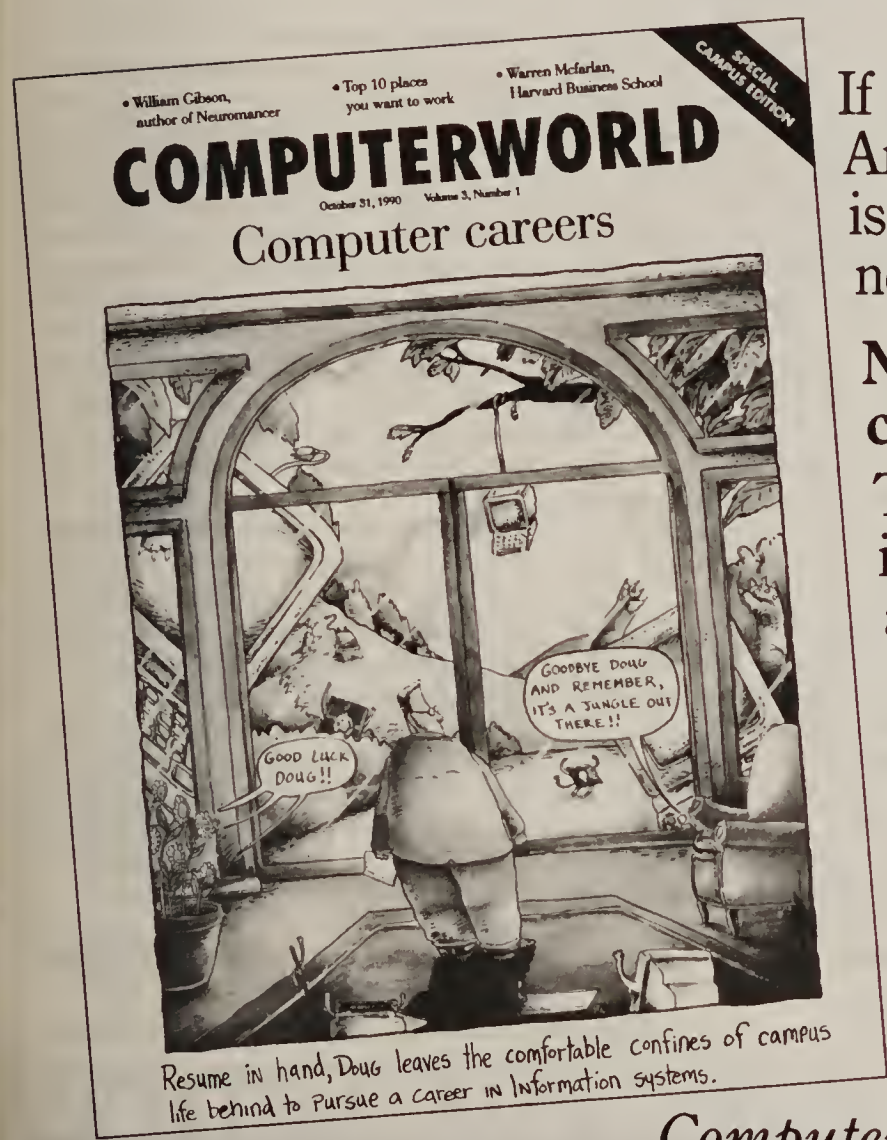

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- Prospects for minorities in computing.
- Merits of an Electrical Engineering degree for a computer career.
- Information Systems salaries from Computerworld's annual survey with the Data Processing Management Association.

Higher pay vs. higher education

It's a well-known fact: The utilities industry treads the high wire in pay, while education walks the low road. But both offer unique features to IS professionals.

Information systems managers in the utilities industry who ranked at the top of *Computerworld*'s 1990 salary survey are the first to admit that the pay is good. The reason: Although IS positions are not unionized, the pay structure of the company requires IS managers to receive higher than average compensation to keep pace with the pay levels of other positions, which are established through collective bargaining.

For example, at Boston Edison Co., "we're told [by other people outside IS] we're overpaid," says John Dubiel, manager of systems assurance. However, he says, salary surveys can be deceiving in terms of title discrepancies. For instance, at Boston Edison, the position of programmer actually has a large analyst component and should be compared with higher paying analyst titles in other industries.

The appeal of the utilities industry is its stability, Dubiel says. Although there have been periods of rapid growth and occassional reorganizations, utility companies generally provide slow, steady, dependable growth. "We don't go through roller-coaster rides. It's a stable environment," he notes. Layoffs among regulated utilities are almost unheard of, Dubiel adds.

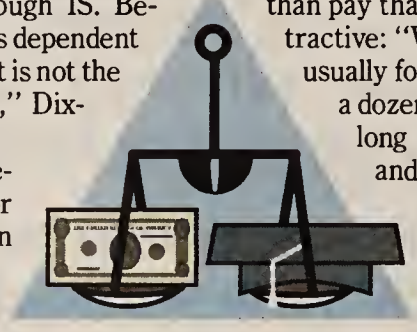
Sure and steady

The result is very low turnover in IS. Dubiel joined Boston Edison 20 years ago. "Our turnover is well under 10%, and that includes retirees," he says. The longevity of the staff results from and contributes to the high salaries.

With such stability, the utilities industry has long been regarded as dull, but that is changing. "We were fat, dumb and lazy. We had a protected turf. We did a good job, but there was no competition until about 1983," says Tod Dixon, vice president of information resources at Northeast Utilities Co. in Berlin, Conn.

New regulations in the early 1980s forced the industry into a much more competitive posture and put pressure on IS to help create a strategic advantage. For instance, Dixon now has systems to assist with the daily buying and selling of power among utilities, a high-pressure/high-stakes affair. "If you don't have your contracts in place in about half an hour, you can miss some good sales," he says.

Despite the growing importance of IS to the bottom line and its good pay, the profession is not the path to the utility company's chief executive officer's suite. "I don't know any top people in the industry who came in through IS. Because the industry is not as dependent on IS as other industries, it is not the way to become chairman," Dixon says.



Yet, IS has its own rewards and challenges. For instance, IS is utilized in managing and operating nuclear power plants, giving new definition to the term "mission-critical." It is a telecommunications professional's paradise: "How many industries have the right-of-way to build their own fiber-optic network?" asks John Scoggin, supervisor of network operations at Delmarva Power and Light Co. in Newark, Del. He has already run 200 miles of fiber cable.

The industry is more like an engineering environment than a button-down corporate office, and most promotions come from within the company. IS professionals typically enter as programmers. From a technology standpoint, the utilities industry is "middle- to forward-edge but not bleeding-edge," Dubiel says.

Most information systems professionals in education are not surprised by their industry's low ranking in the pay hierarchy. But they want people to know that the differences in salaries are balanced by other benefits and cultural conditions and have little to do with the nature of the IS work.

"The salaries are low, but we do [offer a more complete compensation package] to be competitive," says M. Stuart Lynn, vice president of information technologies at Cornell University in Ithaca, N.Y.

Howard Miller, assistant vice president of administrative computing at Boston University, lists compensation other than pay that makes educational IS attractive: "We get a lot of time off" — usually four weeks of paid vacation, a dozen paid holidays and a week-long break between Christmas and New Year's.

Tuition breaks for employees and their families are also an envied benefit. For instance, at Taylor University in Upland, Ind., employees receive tuition reimbursement that amounts to $8,000 annually, says Bob Hodge, Taylor's chief information officer.

Educational computing is divided into two parts: administrative and academic. Administrative computing is very similar to the corporate world, according to Martin Smith, assistant vice president of administrative computing at the University of Massachusetts at Amherst. Academic computing is more informal — a blue jeans environment in which IS professionals closely support the work of students and faculty on personal computers, workstations and networks.

Smith, who has worked at the school for 20 years after serving a stint in the corporate systems world, says IS professionals should look beyond salary. "When experienced people come here from the business world, they have to take a cut in salary," he points out, but they leave behind many of the pressures of the corporate world.

On the other hand, many young people "start here and see that the salaries are low and jump to the corporate sector," Smith says.

Academic security

Job security is another hallmark of university life, but that may be changing. "I don't know if we've ever had a major layoff, although some universities are facing that now," Miller says. Enrollments are down because of a significant decline in the number of high school students. Still, universities rarely, if ever, merge, downsize or restructure, laying people off in the process.

The university culture is also attractive to many people. There is no pressure to conform to a rigid corporate image, Lynn says. "It's a vibrant, intellectual community."

Intellectual stimulation, however, doesn't pay the rent, and even with generous time off, tuition reimubursement, and job security, "the pay is at the low end, and small private colleges are often at the low end of the low end," Hodge says.

The bottom line, therefore, is something different: quality of education, not high compensation. "You are working for an organization whose goals are teaching and research. There's a quality of life here."

Stories were written by Alan Radding, a free-lance writer based in Newton, Mass.

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The Registry

Amid layoffs, special skills still in demand in Hartford

BY JANET RUHL
SPECIAL TO CW

Now is not the best time for information systems professionals — especially middle managers — to be looking for a job in the Hartford, Conn., area.

Not only is the local economy reeling from the Federal Deposit Insurance Corp. takeover of Connecticut Bank and Trust Co. NA, the bankruptcies of retailing giant Ames Department Stores, Inc. and mega-developer Colonial Realty, but it is also bracing for the announcement that Aetna Life and Casualty Co. will be eliminating 2,600 jobs this quarter, which translates into an estimated 125 to 150 lost IS jobs.

All this has had a chilling effect on the more than 10,000 programmers, systems analysts and IS managers who live in the Hartford area, leaving many of them wondering how secure their own jobs are.

Clinging to jobs

Despite the grim news, recruiters and hiring managers report they are not seeing a flood of people job hunting out of fear of being laid off. Rather, employees who have jobs are clinging to them and are less likely to risk making a change. Most IS professionals are taking this attitude: "I may not be in the best position, but at least I have a position," says Mark Jacobs, a senior consultant at Data Pros in East Hartford.

But middle managers, whose jobs may be in the most jeopardy, may not have the luxury of staying put, according to IS spokesmen and recruiters. For example, Aetna's goal is to flatten its organizational pyramid by eliminating the overall number of management slots, according to Regina Stankaitis, a staffing consultant at Aetna. She hastens to add that Aetna is only one of many large insurers in Hartford that is implementing this policy.

Because so many other local employers have already trimmed their managerial ranks, IS middle managers are almost impossible to place locally, says Ray Turner, manager of Source EDP's Hartford office. He says that to his knowledge, there are not five IS management jobs open in Hartford right now. Middle managers who have lost touch with technology are not likely to find local jobs in the near future, says Bill Tamburro, an executive recruiter at J. Morrissey & Co.

Many managers and other professionals are turning to consulting as an alternative. But even they have problems if they are not technically up to date. Michael Dusza, an executive at the Hartford office of On-Line Software International, Inc., a provider of contract consulting services in the area, reports seeing many laid-off middle-level managers whose salaries were in the area of $60,000 applying for jobs as contract consultants. However, he says, he is only able to bring them on if they have technical skills. "We don't need managers, we need workers — programmers. The days of the middle manager are over."

As in other parts of the nation hit by the recessionary climate, Hartford's contract consulting business is booming. Dusza reports that his company hired 26 consultants during the last quarter of 1990. Turner reports that most of the requests he gets for programmers are from the larger consulting houses, and he explains that this is because in lean times, many companies prefer to cut head count and rely on flexible staffs made up of consultants rather than salaried employees.

Salary slump

However, while the demand for consultants is high, the rates and salaries they are receiving are lower than what area consultants received only a few years ago. With the general erosion of job security throughout the area, Dusza says, his and other consulting firms no longer have to fight the perception that consulting is less secure than regular salaried employment. Consequently, the salaries his firm pays programmers, while comparable to those paid by other local employers, no longer include a premium to make up for the perceived insecurity of consulting work.

Indeed, experienced programmers — particularly those who have managed to get hands-on experience in cutting-edge technology and whose salaries fall in the $35,000 to $45,000 range — seem to be the IS staffers whose career prospects are the brightest. While recruiters and managers say there are indeed glimmers of opportunity for the IS community other than in the consulting arena, they also say this kind of market has caused salaries to stay flat across the board. Jacobs reports that hiring mangers are refusing to negotiate on salary with the attitude of "take it or leave it."

The good news

Fortunately, the picture for IS workers isn't entirely bleak. Certain skills are in high demand. "If I had 20 DB2 people, I could find them positions today," Tamburro says, adding that he also sees a strong demand for people who have been through the entire development cycle using one of several popular computer-aided software engineering technologies.

Turner says there continues to be a steady demand for programmers who have mastered the IBM MVS software repertoire: MVS Cobol, CICS, DB2 and IMS. In addition, he is seeing a growing interest in programmers capable of developing under OS/2 Presentation Manager and Microsoft Corp. Windows along with those who have mastered SQL.

Other companies need people with experience in bringing local-area network technology into the IBM mainframe environment and for Unix experts, particularly those with experience in fourth-generation languages, says Jim Bond, senior placement manager at Robert Half International, Inc. in Hartford.

Stankaitis confirms this, reporting that Novell, Inc. LAN experts are among the very few outside hires Aetna has made recently. The recruiters all note that demand for people with IBM Application System/400 technical skills are also very strong in the region.

Besides the continuing demand for professionals with up-to-date technical expertise, there is also a need in Hartford for programmers with manufacturing applications experience. Jacobs reports that several midsize manufacturing companies that didn't get caught up in the merger-mania of the 1980s are still hiring.

William Stuckey, manager of business applications systems at jet engine maker Pratt & Whitney, says his company is still looking for high-quality people with experience in manufacturing engineering and data processing.

Ruhl is a consultant and programmer in Connecticut and author of *The Programmer's Survival Guide: Career Strategies for Computer Professionals.*

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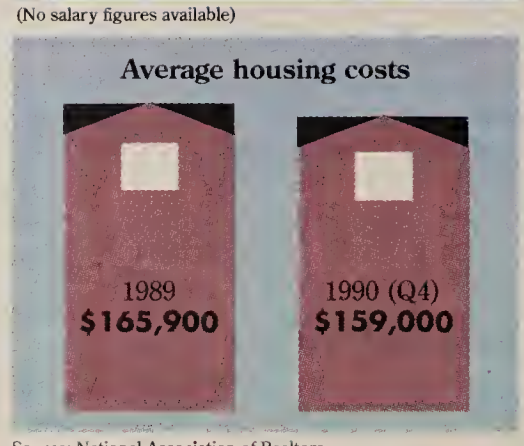

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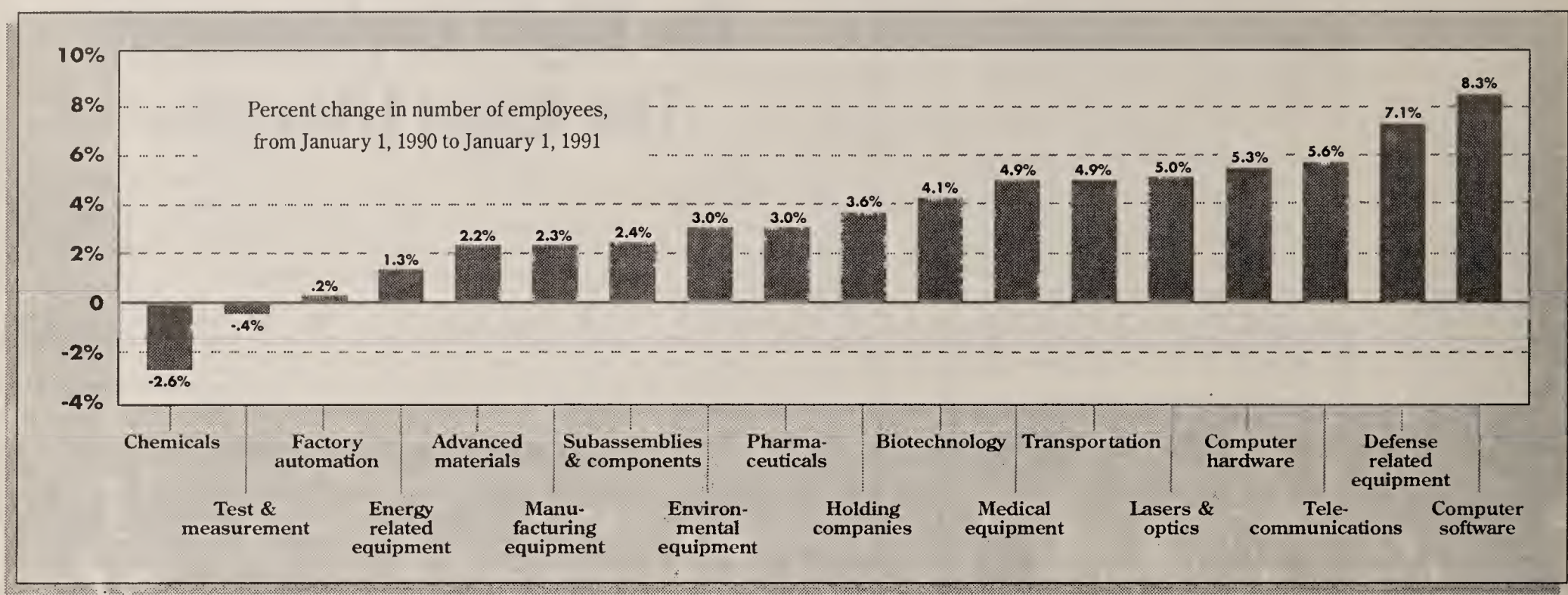

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DIRECT RESPONSE CARDS

Curbing employees from pirating software

Legal eye is a monthly column exploring legal issues and their impact on information systems.

BY LOU OLENICK
SPECIAL TO CW

One of the greatest dangers to a company's competitive advantage is the possibility that disgruntled employees will make illegal copies of vital software for their own use. And employers have grounds for their fears: The Software Publishers Association estimates that for every copy of software in use, there's at least one illegal copy made.

However, companies can combat theft by taking several steps, the first of which is education. Much of this can take place when employees are hired. At this stage, the company should explain its ethical standards on software theft issues. For employees already on the payroll, companies can reinforce existing policies by holding meetings that brief them about their continuing duty to keep trade secrets confidential and the dangers of unauthorized copying.

Because no company wants to earn a reputation for permitting or condoning illegal activity, many of them have already adopted codes of conduct that prohibit employees from violating the terms of software licenses. Among other things, software licenses prohibit making multiple copies of protected material. To drive the point home, most codes of practice inform everyone involved that employees who are caught violating the code are subject to immediate dismissal.

For example, two workers were overheard talking about trading software they had copied from their computers at work. Unfortunately for them, they were overheard by the security chief at a neighboring technology company who reported them to their employer. When they returned to work the next morning, they were greeted with pink slips, persuaded to sign releases and escorted out of the building.

Sign the dotted line

A second way companies can protect themselves is to require employees to sign hiring agreements. These agreements usually cover proprietary information and ownership of work products. Employees are asked to agree that any tools they develop are the property of the employer. This means that an employee who leaves the employer for any reason and takes away software to use personally or to sell to somebody else would be committing a crime.

In addition, some companies require new employees to state that they are not bringing any information or material with them that is proprietary to a previous employer to apply to their new job.

Case in point: One Wall Street financial analyst was recruited from the Federal Reserve System. His expertise was in recommending changes in the prime rate. After he began work for his new employer, he continued to access files from the Federal Reserve computer. He tapped confidential economic indicators that he then used to predict changes in interest rates for his new employer. This person's new career ended abruptly when his new employer learned what he was doing.

A third effective approach is for a company to limit physical and other access to software to protect it from unauthorized use. Especially in areas where company trade secret information is used by employees, the company can limit access to only those carrying authorized passes.

As part of this approach, a company can put a "clean desk" policy in place. This policy would require employees to keep confidential information under lock and key each night.

Nondisclosure agreements are also effective in limiting access. These permit only those personnel, consultants and customers who have signed the agreements to have physical or electronic access to confidential materials. Furthermore, nondisclosures apply to all sorts of information well beyond computer software. Design, planning or pricing materials are examples of protected information. Marketing plans for new products also fall into this category.

Another tack firms are taking is to track installed software. To control their corporate liability, some companies provide a centralized source for all software used by their employees. This centralized service negotiates companywide licenses with vendors, tracks installed software and keeps tabs on who is using what.

Software tracking is wise for three reasons. First, some of these site licenses allow vendors to ask for and to receive audit reports related to the use of their software. Second, it allows the company to efficiently provide technical support and software upgrades to everyone using the systems. Most importantly, the company may find itself at risk because it fails to control the purchase of software by its employees.

Corporate liability

Unbeknownst to some, a company becomes liable to the terms of a software license agreement when one of its employees buys a license to use a package in the company's name. These days, when multinational corporations can have tens of thousands of personal computers worldwide, neglecting details of software purchases can be very costly — especially if the company gets audited.

For example, one software vendor discovered widespread illegal copies of its software in a major corporation. The offending company ended up paying the list price for each illegal copy to avoid bad publicity. The final cost to the firm ran into the millions.

Finally, companies can discourage copying by requiring employees and contractors to mark program materials with confidentiality and copyright notices.

Olenick is a partner at the New York law firm Olenick and Yarnell.

Buy/Sell/Lease

The BoCoEx index on used computers

Closing prices report for the week ending February 8, 1991

	Closing price	Recent high	Recent low
IBM PC Model 176	$300	$450	$200
XT Model 086	$500	$550	$450
XT Model 089	$500	$625	$400
AT Model 099	$650	$975	$500
AT Model 239	$750	$1,025	$700
AT Model 339	$925	$1,100	$900
PS/2 Model 30-286	$1,000	$1,300	$1,000
PS/2 Model 60	$1,500	$1,800	$1,400
PS/2 Model 70P	$3,000	$3,500	$2,500
Compaq Portable II	$900	$1,050	$875
Portable 286	$1,100	$1,450	$1,000
SLT 286	$2,300	$2,500	$2,000
Portable 386	$2,300	$2,800	$2,200
LTE 286	$2,200	$2,500	$1,900
Deskpro 286	$800	$1,000	$700
Deskpro 386/20	$2,850	$3,000	$2,300
Apple Macintosh Plus	$800	$975	$700
SE	$1,150	$1,450	$1,100
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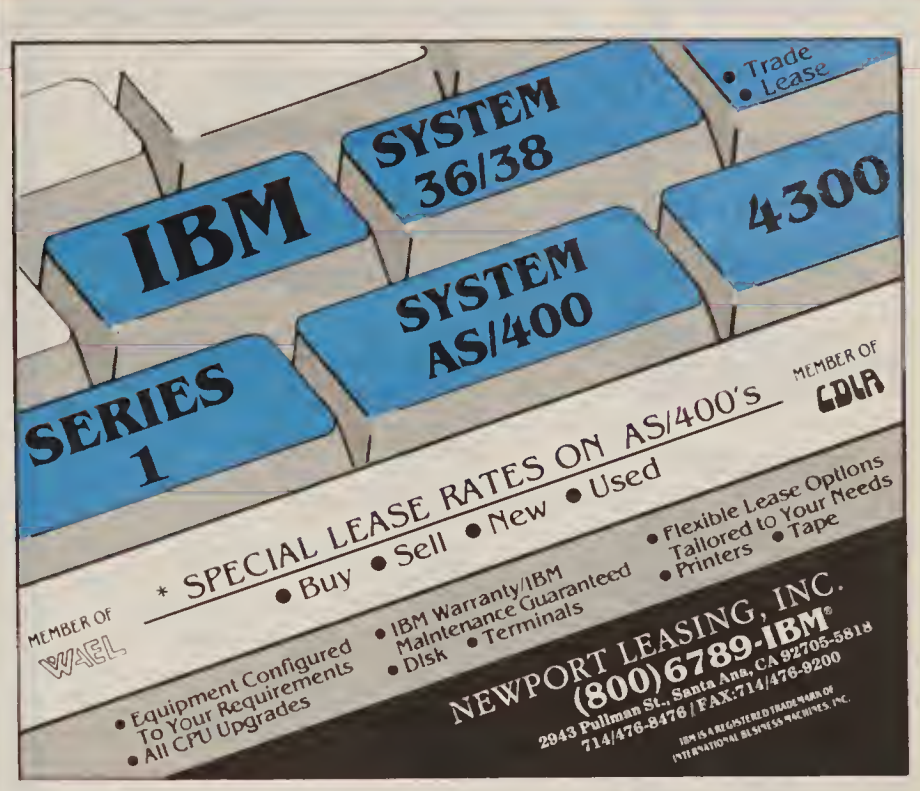

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RFP No. 1955, due Monday March 4, 1991 at 3:30 p.m. for the acquisition of a 20-workstation microcomputer-based lab with printers and software for HINDS COMMUNITY COLLEGE, Utica Campus.

RFP No. 1956, due Monday March 4, 1991 at 3:30 p.m. for the acquisition of a turnkey, LAN-based system for JONES COUNTY JUNIOR COLLEGE.

RFP No. 1957, due Monday March 4, 1991 at 3:30 p.m. for the acquisition of a minicomputer-based system with related peripherals and software for JONES COUNTY JUNIOR COLLEGE.

RFP No. 1958, due Monday March 4, 1991 at 3:30 p.m. for the acquisition of 44 hard disk drives, 88 memory upgrades, and 44 extended keyboards to upgrade existing PC labs in the Computer Technology and Business Technology Departments of EAST MISSISSIPPI COMMUNITY COLLEGE.

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Laughing all the way to the learning bank

BY JOEL GOODMAN
SPECIAL TO CW

"Here in America, we have an immensely humorous people in a land of milk and honey and wit, who cherish the ideal of the 'sense' of humor and at the same time are highly suspicious of anything that is nonserious."

E. B. White

The above quote captures the essence of the paradox experienced by many information systems trainers: They value humor personally but question its use in serious training contexts. However, humor can play a positive part in the learning process.

When used appropriately, humor can maximize learning and creativity. Here is a rundown of the many misconceptions trainers and educators across the nation face.

• **Laughing and learning are mutually exclusive.** Most trainers fear they will lose control of their classes — that if students are laughing, they aren't learning.

In fact, ha ha (humor) and aha! (insight, learning) can go hand in hand. This works because humor can serve many functions in the learning process: It captures people's attention and reduces the tension — which, in turn, increases retention. Ultimately, learning can be fun but not for fun.

• **To be humorous, you have to be a natural joke teller.** Although joke telling is one way to transmit humor, it's not the only way. In fact, there are literally thousands of ways — in addition to joke telling — to invite smiles and laughter within a classroom context. If delivering a punch line is not your forte, or if it is inappropriate for you to become the stand-up comic on the job, then there are alternatives. Here are some tips to get you going:

1. Put humor into the environment. By osmosis, it may filter into the corporate culture. This can be accomplished by having posters in your training room with lighthearted sayings. For example: "The brain is a wonderful organ. It starts the moment you get up in the morning and does not stop until you get to the office." (Robert Frost)

Or perhaps you could have humorous items on a bulletin board in your office. One trainer from Appleton, Wis., has the following pinned to a wall: "On a clear disk . . . you can seek forever."

2. Anticipate ways of injecting humor into the course contents. One trainer from San Diego has a handout with some "daffynitions" such as Auto Exec = Lee Iacocca; hard disk controller = shuffleboard stick; Hypercard = Robin Williams.

3. Develop your comic vision. Look for humor, and it will find you. Make believe you are Allen Funt, the creator of the television show *Candid Camera*, for five minutes each day . . . especially in the most serious of places.

4. Use humor as a tool rather than as a weapon. Laughing *with* others builds confidence, brings people together and pokes fun at our common dilemmas. Laughing *at* others reduces confidence, destroys teamwork and singles out individuals or groups as the "butt." In the words of one trainer: "You don't have to blow out my candle to make yours glow brighter."

5. Laugh at yourself. Set the tone by modeling your ability to take your job seriously and yourself lightly. One of the simplest and most powerful ways of doing this is to "tell stories on yourself" whenever possible and appropriate.

• **Humor is not serious.** On the contrary, the bottom line and the punch line can go together. Perhaps the most important reason trainers should be serious about humor is for the health of it!

Stress and burnout became household words in the 1980s. They certainly come with the territory of being a trainer these days. A report to the President's Science Advisor places the costs of stress to the economy at $200 billion annually. Cents of humor might save dollars. Humor can be a powerful antidote to stress because it can help us move from a "grim and bear it" mentality to a "grin and share it" orientation.

This notion is captured well by George Burns, who says: "You can't help growing older, but you can help growing old."

With humor you can prevent a "hardening of the attitudes." If you stand rigidly in the face of stress, you are much more easily knocked off balance. If you are flexible mentally, you are in a much better position to "roll with the punches" that life throws you.

To wit, a businessman ordered flowers to be sent to the opening of his friend's new office. When the businessman got there, he was delighted to see a beautiful floral arrangement. However, he was more than distressed when he saw the card that had accompanied the flowers: It read, "Rest in Peace"!

> HUMOR CAN SERVE many functions in the learning process: It captures people's attention and reduces the tension — which, in turn, increases retention.

He made a beeline to the flower shop and immediately started yelling at the florist. After the shouting had subsided, the florist reassured him by saying, "Hey, don't worry! Just think . . . somewhere today in this city, someone was buried beneath some flowers that read, 'Good luck in your new location!' "

Regardless of your location in life, humor can help.

• **Training is serious vs. training is a laughing matter.** Both of the above statements are true. The wonderful thing is that you have the choice. By choosing humor, you can help yourself — and your learners — survive and thrive.

Goodman is director of The Humor Project in Saratoga Springs, N.Y., and author of several books.

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INDUSTRY ALMANAC

RECOMMENDATION CHANGES

UPGRADED FROM NEUTRAL TO BUY: **Network General Corp.** (Alex. Brown & Sons, Inc.). Reason: Sharp jump in third-quarter profits; leads market in diagnostic tools for local-area networks.

UPGRADED FROM MARKET PERFORMER TO OUTPERFORM: **Oracle Systems Corp.** (Montgomery Securities). Reason: Company management expects to keep expenses in check; predicts postive cash flow within two quarters.

DOWNGRADED FROM OUTPERFORM TO MARKET PERFORMER: **Lotus Development Corp.** (Montgomery Securities). Reason: Profits for first half of the year will drop as customer demand for company's current spreadsheets slacks off in anticipation of new versions.

UPGRADED FROM HOLD TO BUY: **Lotus** (Prudential-Bache Securities, Inc.). Reason: Though firm is spending heavily as it integrates Samna Corp. into business plan, new releases of spreadsheets will increase revenue.

ANALYSIS IN BRIEF

December 1990 orders improved over November's by 2%. Industry probably hit bottom in November and will improve until May, which marks the start of a traditional seasonal downturn. Chip stocks will likely follow chip orders upward. **Intel Corp.**, whose 1990 sales increased 29%, is a good investment now. Initiate long-term holdings in domestic semiconductor makers this year, as Japanese chip firms lost market share for the first time in eight years. — *Semiconductors: Industry Update, Prudential-Bache, Jan. 21, 1991.*

Getting smaller is the way to grow. Personal computer memory cards are shrinking, but they can hold more data than ever before and may soon attract a large chunk of the market away from floppy disk makers. These cards are not cheap — priced at about 100 times comparable floppies — but prices will fall rapidly as more players enter the memory card arena.

Demand for cards will shoot up in proportion to buyer's desire for portable computers. While desktop machines currently show no growth, notebooks and laptops are growing at a healthy 40% to 50%. — *Miniaturization: Key for the '90s, Paine Webber, Inc., Feb. 1, 1991.*

GUEST SPEAKER

John Rohal, communications analyst, Alex. Brown, Baltimore:

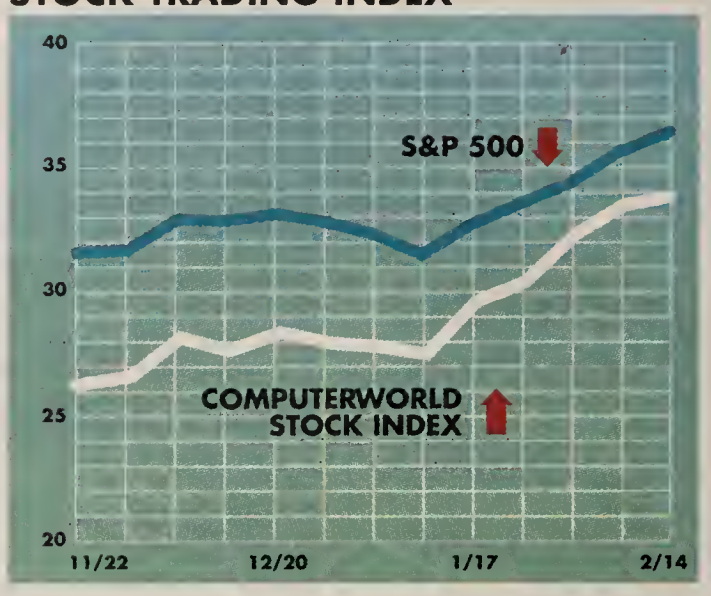
"The local-area networking, internetworking and wide-area networking markets will grow at different rates this year. LAN growth will jump between 25% and 35%, propelled by firms adding more nodes to existing networks. Smart-hub business appears ready to take off at 45% to 50%.

"Internetworking products, which let different kinds of LANs talk to each other, are fast moving now. In 1991, internetworking will grow by 50%, due to lots of firms installing new networks and connecting those already in place.

"However, people are confused about WAN technology, wondering whether to go with private or public networks and whether to use T3 rather than T1 lines. Buyers are also unclear about how and why to use frame-relay vs. packet-switching technology. Don't expect more than a 10% growth rate among WAN vendors."

KIM S. NASH

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

- IBM and Novell, Inc. gained points last week after signing a marketing agreement to put Novell's Netware in the hands of IBM sales agents. IBM soared 6⅝ points to 135⅛ by Thursday; Novell climbed 1½ points to 47½. The pact may strain IBM's relationship with Microsoft Corp., which fell 2¼ points last week to 100¾.
- American Software, Inc., which makes financial and manufacturing packages, dove 4⅜ points to 12⅛. Early in the week, the company said it expects disappointing third-quarter earnings.
- Motorola, Inc. last week unveiled a wireless way to connect computers using radio waves. Its stock zoomed up 2¾ points, ending Thursday at 58⅞.
- Other semiconductor firms stumbled. Intel Corp. and Western Digital, Inc. each suffered 2 point lapses, closing at 47¼ and 4⅜, respectively.
- After hitting new highs early last week, Apple Computer, Inc. ultimately lost ⅝ of a point to 57⅛.

Computerworld Stock Trading Summary

CLOSING PRICES THURSDAY, FEB. 14, 1991

TOP PERCENT GAINERS

Alloy Computer Prod.	50.40
Network Equipment Tech.	28.57
Unisys Corp.	26.09
On Line Software Int'l	21.05
MAI Systems Corp.	20.00

TOP PERCENT LOSERS

Western Digital Corp.	-31.37
Artel Communication Corp.	-28.00
American Software Inc.	-26.52
Masstor Systems	-18.17
Infotron Systems Corp.	-12.50

TOP DOLLAR GAINERS

IBM	6.63
Matsushita Electronics	5.00
Symantec Corp.	4.50
3M Corp.	4.00
Micrografx	4.00

TOP DOLLAR LOSERS

American Software Inc.	-4.38
System Software Assoc.	-3.25
Evans & Sutherland	-2.75
General Motors E (EDS)	-2.38
Microsoft Corp.	-2.25

Communications and Network Services — Up 2.08%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
OTC	19.00	5.38	3 COM Corp.	9.63	0.13	1.32
NYS	69.75	52.50	American Info Techs Corp.	67.63	0.13	0.19
NYS	44.13	29.00	AT&T	33.88	-0.25	-0.73
OTC	9.63	0.88	Artel Communication Corp.	2.25	-0.88	-28.00
NYS	56.25	39.50	Bell Atlantic Corp.	50.75	0.88	1.75
NYS	57.63	49.00	Bellsouth Corp.	53.00	0.88	1.68
OTC	16.38	8.25	Compression Labs Inc.	15.00	0.63	4.35
NYS	39.13	23.38	Contel Corp.	38.00	0.50	1.33
OTC	4.50	1.75	Data Switch Corp.	4.13	0.50	13.79
NYS	26.75	8.88	Digital Comm. Assoc.	15.25	-0.75	-4.69
OTC	22.75	12.25	Dynatech Corp.	21.50	0.50	2.38
OTC	12.88	5.50	Fibronix Int'l Inc.	8.50	-0.25	-2.86
OTC	4.00	1.75	Gandalf Technologies Inc.	2.88	0.25	9.52
NYS	4.63	1.63	General Datacomm Inds.	2.75	0.00	0.00
NYS	34.13	23.50	GTE Corp.	30.38	0.00	0.00
OTC	7.00	0.81	Infotron Systems Corp.	0.88	-0.13	-12.50
NYS	60.88	40.25	ITT Corp.	57.00	2.00	3.64
OTC	44.13	17.88	MCI Commmunications Corp.	26.88	2.88	11.98
OTC	21.00	2.75	Microcom Inc.	5.00	0.13	2.56
NYS	34.38	4.00	Network Equipment Tech.	6.75	1.50	28.57
OTC	14.63	4.00	Network General	11.25	0.75	7.14
OTC	15.50	8.13	Network Systems Corp.	11.75	-0.50	-4.08
NYS	30.50	22.13	Northern Telecom Ltd.	30.13	1.38	4.78
OTC	51.25	16.75	Novell Inc.	47.50	1.50	3.26
NYS	89.50	67.00	Nynex Corp.	75.75	1.88	2.54
NYS	47.88	36.25	Pacific Telesis Group	42.75	-0.13	-0.29
ASE	11.38	4.75	Penril Corp.	10.75	0.25	2.38
NYS	29.13	8.88	Scientific Atlanta Inc.	16.38	0.50	3.15
NYS	59.50	47.25	Southwestern Bell Corp.	56.00	0.63	1.13
NYS	46.38	20.63	United Telecom	25.63	1.13	4.59
NYS	40.50	32.38	US West Inc.	39.75	1.38	3.58

Computer Systems — Up 2.57%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
OTC	8.75	0.56	Alliant Computer Sys.	1.00	0.00	0.00
ASE	18.88	10.00	Amdahl Corp.	16.00	0.00	0.00
OTC	61.50	24.25	Apple Computer Inc.	57.13	-0.63	-1.08
OTC	13.88	4.25	Archive Corp.	6.88	-0.13	-1.79
OTC	48.75	13.88	AST Research Inc.	44.75	-0.25	-0.56
NYS	6.88	3.88	Bolt, Beranek & Newman	6.63	0.50	8.16
NYS	18.38	4.50	Commodore Int'l	17.00	0.75	4.62
NYS	74.13	35.50	Compaq Computer Corp.	70.13	0.63	0.90
OTC	3.63	0.13	Computer Automation Inc.	1.25	0.00	0.00
NYS	21.63	6.75	Control Data Corp.	12.63	-0.13	-0.98
NYS	20.88	8.38	Convex Computer	16.13	0.25	1.57
NYS	51.25	20.00	Cray Research Inc.	41.75	3.13	8.09
NYS	13.25	3.50	Data General Corp.	9.25	0.75	8.82
NYS	3.88	0.75	Datapoint Corp.	2.00	-0.25	-11.11
OTC	27.38	5.50	Dell Computer Corp.	24.75	0.50	2.06
NYS	95.13	45.50	Digital Equipment Corp.	73.88	3.88	5.54
NYS	36.13	13.75	Harris Corp.	25.50	-0.38	-1.45
NYS	50.38	24.88	Hewlett Packard Co.	40.25	2.00	5.23
NYS	135.13	96.25	IBM	135.13	6.63	5.16
OTC	14.00	7.75	Information Int'l	8.75	-0.50	-5.41
OTC	23.50	10.50	Intergraph	18.25	-0.50	-2.67
NYS	3.13	0.50	MAI Systems Corp.	0.75	0.13	20.00
NYS	156.00	114.00	Matsushita Electronics	135.50	5.00	3.83
OTC	26.00	9.00	Mentor Graphics Corp.	17.00	1.38	8.80
NYS	92.88	44.50	NCR Corp.	91.88	2.63	2.94
OTC	35.50	11.00	Pyramid Technology	19.63	0.13	0.64
OTC	34.00	9.75	Sequent Computer Sys.	14.00	0.00	0.00
NYS	43.50	18.00	Silicon Graphics	39.38	3.38	9.38
NYS	30.25	14.63	Stratus Computer Inc.	27.63	0.13	0.45
OTC	37.25	15.00	Sun Microsystems Inc.	28.13	-1.38	-4.66
NYS	30.13	8.88	Tandem Computers Inc.	13.88	-0.63	-4.31
NYS	39.50	23.50	Tandy Corp.	32.13	-0.13	-0.39
OTC	35.50	6.75	Teradata	13.50	-1.75	-11.48
NYS	7.88	1.38	Ultimate Corp.	4.38	0.13	2.94
NYS	17.13	1.75	Unisys Corp.	3.63	0.75	26.09
ASE	6.25	2.00	Wang Labs Inc. (b)	3.25	0.38	13.04

Software & DP Services — Up 2.74%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
OTC	50.75	17.00	Adobe Systems Inc.	42.25	2.75	6.96
OTC	43.25	16.75	Aldus Corp.	40.50	0.25	0.62
OTC	24.00	11.00	American Mgmt. Systems	23.25	0.38	1.64
OTC	18.25	7.50	American Software Inc.	12.13	-4.38	-26.52
NYS	3.75	1.38	Anacomp Inc.	2.75	0.38	15.79
OTC	23.50	10.00	Analysts Int'l	15.50	-0.75	-4.62
OTC	15.13	4.88	Ashton Tate	6.88	0.13	1.85
OTC	10.25	4.00	ASK Computer Sys.	6.88	0.00	0.00
NYS	65.25	45.25	Auto Data Processing	61.00	-1.63	-2.59
OTC	80.25	32.00	Autodesk Inc.	45.75	-0.50	-1.08
OTC	29.00	12.00	BGS Systems Inc.	29.00	3.75	14.85
OTC	42.50	17.75	BMC Software Inc.	39.25	-0.25	-0.63
OTC	21.50	11.00	Boole & Babbage Inc.	12.75	0.50	4.08
OTC	52.25	11.88	Borland Int'l	50.50	2.13	4.39
NYS	11.88	0.88	Businessland Inc.	2.38	-0.13	-5.00
OTC	15.00	4.38	Cognos Inc.	14.50	2.25	18.37
NYS	16.88	4.38	Computer Associates	10.00	0.50	5.26
OTC	17.75	7.75	Computer Horizons	14.50	-0.50	-3.33
NYS	58.88	36.75	Computer Sciences	58.63	2.13	3.76
NYS	12.25	6.63	Computer Task Group	9.75	0.50	5.41
OTC	25.25	13.00	Comshare Inc.	15.75	0.50	3.28
OTC	16.00	3.75	Corporate Software	8.50	-0.50	-5.56
NYS	47.00	25.75	General Motors E (EDS)	43.38	-2.38	-5.19
OTC	18.25	7.25	Goal Systems Int'l	16.50	-0.25	-1.49
OTC	4.75	1.88	Hogan Systems Inc.	3.75	0.00	0.00
OTC	9.75	5.00	Index Technology	8.88	0.38	4.41
OTC	16.63	7.75	Information Resources	15.88	1.63	11.40
OTC	17.50	2.63	Informix Corp.	4.88	0.00	0.00
OTC	7.88	1.38	Intellicorp Inc.	2.06	-0.06	-2.92
OTC	8.00	2.50	Interleaf Inc.	5.00	0.25	5.26
OTC	33.75	10.00	Knowledgeware Inc.	33.75	2.25	7.14
OTC	37.75	16.75	Legent Corp.	36.00	0.25	0.70
OTC	39.25	12.50	Lotus Development	23.00	3.50	17.95
OTC	32.00	13.63	Micrografx	30.00	4.00	15.38
OTC	109.00	47.75	Microsoft Corp.	100.75	-2.25	-2.18
NYS	9.88	4.00	On Line Software Int'l	8.63	1.50	21.05
OTC	28.38	4.88	Oracle Systems	9.38	-0.75	-7.41
NYS	17.88	7.00	Pansophic Systems	11.38	0.00	0.00
OTC	7.38	1.25	Phoenix Technologies	6.75	0.00	0.00
NYS	50.50	31.63	Policy Management Sys.	48.88	-0.38	-0.76
NYS	23.63	11.50	Reynolds & Reynolds	19.25	1.88	10.79
OTC	16.13	6.88	Sage Software Inc.	8.88	-0.25	-2.74
OTC	23.25	14.75	SEI Corp.	22.75	0.50	2.25
OTC	18.38	12.25	Shared Medical Systems	17.38	1.00	6.11
OTC	28.00	12.00	Software Publishing Corp.	25.38	0.88	3.57
NYS	11.00	5.50	Sterling Software	10.75	0.63	6.17
OTC	26.00	9.50	Sungard Data Sys.	14.50	-0.25	-1.69
OTC	44.25	17.00	Symantec Corp.	42.00	4.50	12.00
NYS	24.88	4.50	System Center Inc.	5.50	0.25	4.76
OTC	37.25	12.75	System Software Assoc.	30.25	-3.25	-9.70
OTC	27.38	4.75	Weitek	14.00	1.00	7.69

Semiconductors — Up 0.21%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
NYS	25.88	17.88	Advanced Micro Devices	22.38	-0.25	-1.10
NYS	9.25	5.50	Analog Devices Inc.	8.63	-0.13	-1.43
OTC	23.50	5.25	Chips & Technologies	11.50	0.50	4.55
OTC	52.00	28.00	Intel Corp.	47.25	-2.00	-4.06
NYS	13.00	5.13	LSI Logic Corp.	8.50	0.50	6.25
NYS	16.38	6.75	Micron Technology	12.25	0.75	6.52
NYS	88.38	45.75	Motorola Inc.	58.88	2.75	4.90
NYS	8.88	3.00	National Semiconductor	6.50	0.25	4.00
NYS	44.00	22.50	Texas Instruments	40.75	0.50	1.24
OTC	12.25	3.00	VLSI Technology	7.69	0.88	12.84
ASE	14.88	4.00	Western Digital Corp.	4.38	-2.00	-31.37

Peripherals & Subsystems — Up 4.22%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
OTC	2.38	0.09	Alloy Computer Prod.	0.19	0.06	50.40
OTC	2.50	0.88	Apertus Technologies	1.94	-0.06	-3.10
OTC	24.00	7.50	Banctec Inc.	10.25	0.13	1.23
ASE	9.00	4.13	Cognitronics Corp.	8.88	0.75	9.23
NYS	31.25	14.63	Conner Peripherals	25.75	-2.00	-7.21
ASE	22.00	7.00	Dataram Corp.	11.00	0.75	7.32
NYS	10.88	4.25	EMC Corp.	9.38	0.13	1.35
NYS	47.25	33.75	Eastman Kodak Co.	45.38	1.50	3.42
OTC	8.88	4.38	Emulex Corp.	8.13	0.13	1.56
OTC	34.50	14.00	Evans & Sutherland	20.75	-2.75	-11.70
OTC	6.25	3.25	Iomega Corp.	5.38	0.44	8.85
OTC	25.25	6.50	IPL Systems Inc.	25.25	2.75	12.22
OTC	2.06	0.13	Masstor Systems	0.56	-0.13	-18.17
OTC	17.00	2.63	Maxtor Corp.	4.25	-0.38	-8.11
OTC	13.38	3.88	Micropolis Corp.	12.63	0.88	7.45
NYS	91.75	73.63	3M Corp	91.25	4.00	4.58
OTC	14.50	6.00	Printronix Inc.	8.25	0.25	3.13
NYS	21.25	8.50	OMS Inc.	19.13	0.63	3.38
OTC	25.75	10.25	Quantum Corp.	22.88	0.38	1.67
NYS	6.88	4.38	Recognition Equipment	5.88	0.13	2.17
OTC	9.88	4.00	Rexon Inc.	7.13	0.13	1.79
OTC	19.75	5.63	Seagate Technology	14.88	0.63	4.39
NYS	35.25	11.00	Storage Technology	30.38	2.25	8.00
OTC	4.00	0.81	Tandon Corp.	3.44	0.38	12.24
NYS	22.88	11.63	Tektronix Inc.	20.50	-0.25	-1.20
OTC	0.63	0.16	Televideo Systems	0.22	0.03	18.49
NYS	56.75	29.00	Xerox Corp.	53.00	3.38	6.80

Leasing Companies — Up 4.56%

Exch	52-Week	Range		Feb. 14 Close	Wk Net Change	Wk Pct Change
OTC	10.75	6.88	Amplicon Inc.	10.50	-0.25	-2.33
OTC	4.38	0.31	Capital Associates	0.56	0.06	12.60
NYS	28.50	14.63	Comdisco Inc.	27.75	2.63	10.45
OTC	16.25	9.25	LDI Corporation	12.25	0.25	2.08
OTC	5.88	2.25	Selecterm Inc.	2.50	0.00	0.00

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Power play

FROM PAGE 1

but the down side is that users are saying [to IBM], 'You led me down a primrose path' with LAN Server," said Bill Conley, manager of information technology services at Loral Aerospace, Inc. in Newport Beach, Calif. "I could have been getting to know Novell a long time ago."

With an approximate 8% market share, LAN Server has been outdistancing Microsoft's shrink-wrapped LAN Manager (3%) and Banyan Systems, Inc.'s Virtual Networking Software (6%), according to Meta Group, Inc., a Westport, Conn.-based consultancy.

Tipping the scales

Blending Novell's 57% LAN market share with the might of the IBM distribution channel could tip the LAN market share scales more than a little. For example, some users questioned whether IBM's sanctioning of Netware will leave its long-term partner, Microsoft Corp., out in left field with its "open" OS/2 LAN Manager network (see story at right).

The vendors said that they plan to be able to provide for management of Netware under IBM's enterprise network manager, Netview, and to allow Netware communications protocols to pass through IBM's 8209 Ethernet-to-Token-Ring bridge.

In addition, the companies will team up to allow Novell to port Netware to 32-bit OS/2 and the RISC System/6000 computing platform by year-end 1992. The RS/6000's AIX operating system currently supports SNA protocols for homogeneous IBM networking.

IBM said it will then provide a feature to allow Netware for OS/2 and the RS/6000 to interoperate with OS/2 LAN Server.

Phillip Gordon, manager of end-user computing at Charles Schwab & Co., a Novell user, said the relationship is significant for him because he is looking closely at Unix. "It's nice to know that if IBM provides Netware for the RS/6000, we can cozy up to IBM in the Unix market and move to Novell at the same time," he said.

Previously, IBM had touted OS/2 LAN Server as the network operating system of the future. Art Olbert, program system director of client/server computing at IBM, said that now, "the application choice will dictate which LAN IBM sells."

In positioning the products separately, IBM seems to be admitting that there is room in the market long-term for an alternative to LAN Server.

Concerns addressed

The joint distribution, licensing and support agreement addresses customer concerns about interoperability and enterprise networking. For example, Novell and IBM announced that Netware for the 16-bit OS/2 multitasking operating system is currently available and that MS-DOS and OS/2 clients can concurrently access OS/2 LAN Server and Netware servers.

The relationship "ratifies the decision of larger corporate clients to buy Novell networks," explained Phil Gilbert, a principal at consulting firm Gilbert and Associates in Pacific Palisades, Calif. "A lot of IBM users who bought Novell were uneasy about whether a big software migration might be needed down the line."

Senior Editor Patricia Keefe contributed to this report.

Powerful lure

Even though growth rates are slowing, demand for office local-area networks translates into major revenue gains

Total office LAN market: revenue forecasts (world) 1986-1992

Year	Revenue (in millions)	Growth rate
1986	$1,772.2	—
1987	$2,952.6	66.6%
1988	$4,675.6	58.4%
1989	$7,104.6	52.0%
1990*	$9,869.9	38.9%
1991*	$12,842.7	30.1%
1992*	$15,862.3	23.5%

*projected

Source: Market Intelligence Research Corp.
CW Chart: Doreen St. John

Netware pact leaves LAN Manager up in air

BY JIM NASH
CW STAFF

Microsoft Corp. had little to say about the alliance announced last week between IBM and Novell, Inc. However, the pact had many observers abuzz about the impact it will have on Microsoft's LAN Manager, which is licensed to IBM.

Although speculation about the alliance had been circulating for some time, "it's way too early to make an educated guess about the ultimate effect" on LAN Manager, said Mike Murray, Microsoft's network business unit general manager.

Network managers, resellers and analysts contacted said the effect on Microsoft could range from neutral to negative.

"This is probably a bad thing" for LAN Manager, said Steve Wigginton, project manager at U.S. Computer Services Corp. in Sacramento, Calif. IBM and Novell could force LAN Manager into a permanent disadvantage. Or, he added, Microsoft could hurt itself.

"Microsoft seems a little wishy-washy," Wigginton explained. "They say some LAN Manager pieces might go into Windows, some into OS/2. I'd just like to see a clear direction."

Many of those contacted last week dismissed the idea that IBM would do anything to short-change LAN Server, its own licensed version of LAN Manager. Microsoft said work by both companies to converge the two products will not slow down.

Many network administrators — particularly those already sold on IBM — said they see little effect on them. "If anything," said Dale Miyasaki, personal computer specialist at Central Pacific Bank in Honolulu, "I think we will be even more likely to go with OS/2 LAN Server."

"If IBM is rallying behind Novell, nice for IBM. I think it's a terribly ridiculous move on their part," said Stephen Turner, technology consultant at Chevron Canada Corp. LAN Manager is superior to Netware and, in the long term, will overtake Netware in unit sales, he added.

Microsoft's "guiding thought" is that someday OS/2 will also be a network operating system, Murray said. Until that day, he said, Microsoft will examine which LAN Manager features will be moved onto OS/2.

Other observers are focused more on the present, with fresh memories of abrupt Microsoft moves and even a miscue or two. "As a practitioner of networking who specializes in LAN Manager, I am a little nervous," said Richard Westerman, president of Houston-based consulting firm Westerman and Associates.

Rocky road

It has been a bumpy couple of months for Westerman and other 3Com users. 3Com acknowledged that its 3+Open product was not selling and handed the LAN Manager-based network operating system over to Microsoft last month. Earlier this month, Microsoft said it remained committed to OS/2 but clearly indicated that its own intentions are focused on its Windows 3.0 graphical user interface for DOS and a future version of OS/2 designed for a range of hardware platforms.

Miyasaki said he sees some contradiction in IBM marketing its PC networking product alongside its chief rival, Netware, but that would not be the first time for such a situation. He said IBM markets banking software produced by competitors next to its own programs.

The true effect of the move could be on new accounts for IBM or for companies looking to bring in a new network operating system. IBM, which will market, service and support Novell's Netware 286, 386 and V. 3.11 lines, may give LAN Server a lower priority in sales calls, said Bill Whitlow, securities analyst at Gallagher Capital Corp.'s Seattle office.

Vines, Stargroup LANs to interoperate

File- and print-sharing and E-mail exchanges available between the two

BY JOANIE M. WEXLER
CW STAFF

BOSTON — Users of Banyan Systems, Inc. Virtual Networking Software (Vines) and AT&T's Stargroup LAN Manager local-area networks will be able to interoperate on several levels, according to statements issued by the two vendors at last week's Networld show.

The companies said products that allow file- and print-sharing and electronic-mail exchanges between the two networking environments are immediately available. In addition, Banyan's Streettalk global naming service — which has given Banyan an edge in the enterprise network market — can now reportedly straddle both LANs.

In addition to these applications, Oracle Systems Corp. databases can be accessed from both networks by "buying a SQL bridge from Oracle and Transmission Control Protocol/Internet Protocol options from Banyan and AT&T for their respective systems," said Bill Johnson, Banyan's director of business development.

E-mail appeal

Johnson indicated that the LAN Manager/Vines interoperability may appeal to users who like Banyan's naming and mail systems but shy away from dumping existing Stargroup investments. One analyst, however, said this will probably be rare.

"I don't see a lot of need for Vines and Stargroup interoperability," commented Frank Michnoff, a program director at Meta Group, Inc., a Westport, Conn.-based consultancy. "AT&T simply doesn't have much of a LAN presence, despite the fact that it has good products."

Michnoff said that there is some synergy between the two firms and that it makes sense for AT&T not to put all of its networking eggs into one LAN Manager-based basket. "Microsoft [LAN Manager's original architect] is talking about adding functions found today in LAN Manager, such as security, fault tolerance and multiprocessing, to the OS/2 operating system itself," Michnoff explained. "LAN Manager will sit on top of it but may become more of a utility layer. Providing interoperability with Vines is a way not to get stuck out there all by yourself."

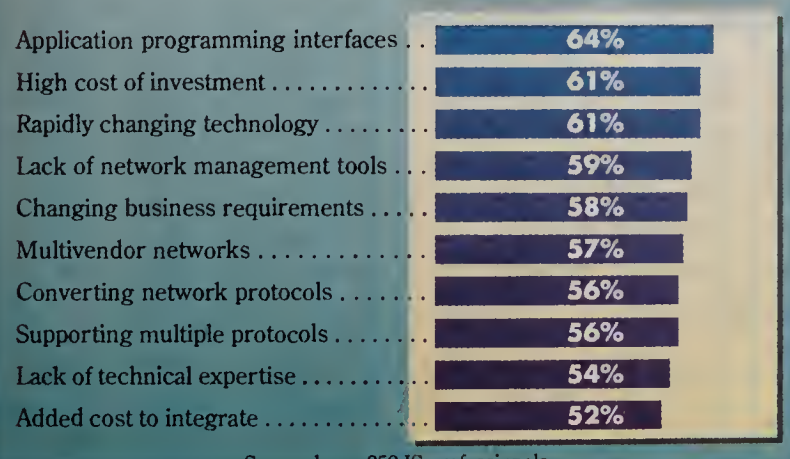
Vines will now run on AT&T's Intel Corp. I486-based Starserver E and Starlan 10 Extended Industry Standard Architecture platforms. Simple Network Management Protocol support and Vines hooks to AT&T's Accumaster enterprise network management system were demonstrated at Networld but have not yet been formally announced.

A commitment that was made last spring to provide interoperability between Vines and Microsoft Corp.'s OS/2-based LAN Manager has yet to be fulfilled, and Banyan would not say when integration of the two environments would be completed.

Woe is me!

Large end-user companies agree that they face multiple problems in integrating personal computer local-area networks into enterprise networks

Substantial problems in integrating separate IS groups into interoperable networks



Survey base: 259 IS professionals

Source: Business Research Group
CW Chart: Paul Mock

NEWS SHORTS

NCR pleads with FCC

Tossing yet another obstacle in the way of AT&T's hostile takeover attempt, NCR Corp. filed a petition with the Federal Communications Commission last week asking for an "immediate investigation" into AT&T's proposed $6.1 billion acquisition. In its petition, NCR argued that acquiring and operating NCR's computer business would strain AT&T's investments in its regulated telecommunications business.

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Packer heads Bankers Trust group

Bankers Trust Corp. named former MAC Group consultant Michael Packer to head its centralized Technology Strategic Planning group last week. He is responsible for information systems architecture planning, global networks and human resources issues for the bank's 1,400 IS employees worldwide. Packer replaces Geoff Penney, who became technology chief at a Bankers Trust business unit. Packer reports to Chief Technology Officer Carmine Vona.

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Fujitsu pairs with Systems Center

Systems Center, Inc. added Japanese computer vendor Fujitsu Ltd. to its list of joint development partners last week. According to Systems Center general marketing manager Michael Matthews, the two companies will integrate Systems Center's IBM network management platform, Net/Master, with Fujitsu's Coms-I management platform so users will be able to run the same management applications across both systems. Users will be able to extend those applications to Tandem Computers, Inc. hosts as well, as a result of a similar development agreement between Tandem and Systems Center, Matthews said. The first fruits of the Fujitsu Systems Center agreement are set to ship in Japan in the third quarter.

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Disk capacities hit 2G bytes

Fujitsu America, Inc. announced last week hard disk drives that it said will best the highest capacity Winchester drives available when they ship next quarter to OEMs and value-added resellers. The 2G-byte, 5¼-in. M2652 drives, which start at $5,995, are intended for use in systems ranging from high-end personal computers to supercomputers. They offer an 11-msec average seek time and a drive transfer rate of 4.7M byte/sec. The drives are available in Small Computer Systems Interface 2 and Intelligent Peripheral Interface 2 configurations.

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EDS lands outsourcing contract

Electronic Data Systems Corp. (EDS) last week announced a 10-year outsourcing contract with Sunnyvale, Calif.-based Signetics Co. The contract is worth approximately $100 million, according to the company. EDS will manage the firm's 20,000 sq-ft data center and will also use the center to provide services to Ask Computer Systems, Inc. EDS was a major equity partner in Ask's acquisition of Ingres Corp.

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Butler retires from Microsoft

Microsoft Corp. announced last week that Jeremy Butler, senior vice president of international and OEM business, will retire June 30. Butler, 47, joined the company in 1985, and prior to joining Microsoft, worked at Cognos Corp. Microsoft vice presidents who handle international businesses will now report to President and Chief Operating Officer Mike Hallman.

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Wireless LAN debuts

Motorola, Inc. has turned the wireless local-area network technology announced last fall into a microwave-based Ethernet-compatible product dubbed Altair. Altair consists of a user module, which connects up to six Ethernet devices via thin coaxial cable and transmits data through the air to a centrally located control module. Users contend for transmission access through the user module just as they would contend for bandwidth on a cabled Ethernet. A 30-user Altair network costs $715 per port, excluding the cost of the Ethernet card that goes into Ethernet-attached devices.

Apple enhances Mac portable

Users skeptical; criticism concerns weight, readability and price

BY JAMES DALY
CW STAFF

CUPERTINO, Calif. — Apple Computer, Inc. embellished the features and slashed the prices of its slow-selling portable last week, but users said the long-overdue upgrade still falls short, because it leaves the machine's bulky weight unchanged.

The enhancements reflect 1½ years of mixed reviews for the 15-pound machine, which has been criticized as too expensive, too heavy and too hard to read. The upgraded portable "is the machine they should have had out two years ago," said William Walker, manager of business planning at Pan American World Airways in Rockleigh, N.J. "And at 15 pounds it's hardly a portable; it's more of a draggable."

Apple officials continue to downplay the weight issue, however, by promoting the portable as a transportable machine rather than a truly portable unit. "Our focus was on making the technology and price more competitive," said spokeswoman Kate Paisley, who would not indicate whether Apple was working on a slimmer model of the machine.

Illuminated screen

The new model's most salient feature is the addition of backlighting, which makes the screen easier to read by shining light in it from behind. The backlit feature also adds faster response for better mouse tracking and higher contrast.

The portable will offer the same sealed lead-acid batteries available on the older models, but the energy required for the backlit screen has forced Apple to downgrade the operational time of the batteries to three to six hours rather than six to nine hours, Paisley said.

Apple also added an extra 1M byte of random-access memory to the portable to allow it to run System 7.0, the Macintosh operating system update expected later this year.

The portable will offer both 2M bytes and 4M bytes of RAM instead of the earlier version's 1M byte of RAM. Both of the newer models offer a 40M-byte hard disk drive. In addition, the portable can accommodate up to 8M bytes of memory when configured with third-party RAM cards. A 2M-byte version of the portable will cost $4,199, down from $5,499. The 4M-byte version will sell for $4,699.

Apple officials said they will also offer a $1,095 dealer-installable upgrade package that retrofits current owners with the same backlighting available on the new model.

> "OUR FOCUS WAS on making the technology and price more competitive."
>
> KATE PAISLEY
> APPLE COMPUTER

Liberty

FROM PAGE 1

60% of Liberty Mutual's older applications run on IBM platforms, more than three-quarters of new applications run on servers, minicomputers or workstations from other vendors.

The IBM mainframe, however, remains an important part of Liberty Mutual's IS strategy. In fact, the firm installed an IBM Enterprise System/9000 Model 720 in its Portsmouth, N.H., data center three weeks ago. Two 3090-400E models were traded in, but two additional 400Es remain.

Displacing IBM "would not be consistent with the multivendor approach," said David Sluyter, a project leader in IS research and development. "And there are still things that IBM does better than everyone else, like transaction processing for claims."

Liberty Mutual's break from insurance industry tradition began in 1985 with the arrival of 29-year-old Maryann P. Burke as vice president of IS. Two years later, Burke hired Grady, a financial services IS veteran who had gone to work for DEC, to help lead the move to multiple vendor platforms.

Grady "began to advocate a much more open-minded approach," Sluyter said. "He has been a forceful advocate of change, and the compelling argument is price/performance."

Grady said it is hard to quantify the benefits of the strategy because "as fast as the price/performance increases, the appetite for performance increases."

Examples of Liberty Mutual systems running on non-IBM platforms include the following:

- Applications on the Apple Macintosh for employees selling Liberty Mutual products to businesses. The firm has more than 4,000 Macintoshes in the U.S.
- A DEC VAX-based report generator with a Macintosh front end.
- Applications development work on Sun Sparcstations.
- Relational databases with more than 100G bytes of data running on a Teradata 1012 machine with access from IBM, DEC and Apple platforms.

> I "CAN DEMONSTRATE concretely that we've saved the company money in some cases."
>
> MARYANN P. BURKE
> LIBERTY MUTUAL

Burke, now senior vice president of IS, hesitated to call the company's direction "downsizing" but rather "sizing solutions appropriately to the business problems."

Although the firm will not disclose specific dollar figures, Burke said she "can demonstrate concretely that we've saved the company money in some cases and have used that to invest in more applications."

Multivendor does not mean any vendor. Liberty Mutual has standards for user interfaces, information architectures and network architectures that vendors must comply with.

"Unix is a tool that gives us vendor compatibility and flexibility, but it's not a key of our strategy," Grady said. "We don't have a religious fervor for open systems; we can get business benefits long before there is binary compatibility across platforms."

Nonetheless, the company's direction toward open systems stands out in the insurance industry, which lags behind others on the issue. Only 21% of 36 insurance industry IS executives surveyed by Index Group, Inc. last fall said they are moving to open environments in the next two to three years, compared with 33% of 394 IS executives in all industries.

Competition

FROM PAGE 1

much better way of selling a spreadsheet than through a two-page, four-color magazine spread," he added.

But how well have the plots to create a microburst of market momentum really worked? Probably not as well as vendors think.

"We're not going to realign our corporate strategy just because [a software vendor] is having a special deal for two months," said John Robinson, director of corporate information systems at Cox Enterprises, Inc. in Atlanta.

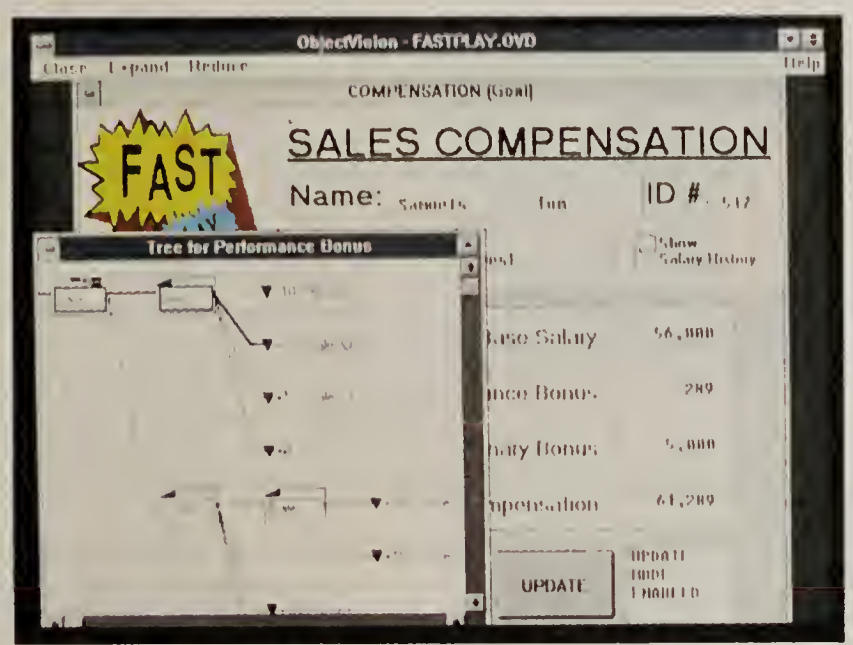
Vendors said underpricing, at least in a product's early days, will continue to be an integral part of their marketing game plan. "It's a way to capture attention early," said Spencer Leyton, senior vice president of business development at Borland. "We want to take the price out of the decision equation."

However, vendors wave away speculation about the death of the $500 software package, saying they cannot afford to indefinitely bloody others' noses financially. "Long-term, it would be a pretty dead-end strategy," said Scott Oki, senior vice president of sales, marketing and services at Microsoft. "We couldn't afford to continue to invest heavily in research and development by giving away software."

Borland, which set the tone for cost cutting with its $99.95 promotion of Quattro Pro, said the promotion has been so successful it is being continued indefinitely. "As long as there are Lotus users out there who haven't upgraded to Quattro Pro, the program will be in place," company spokeswoman Catherine Miller said.

Whether short- or long-term, promotional price cutting seems destined to become a traditional component of future marketing plans, and that has made users very happy. "It's OK with me if they knock each other out," said Steve Birgfeld, manager of the product evaluation unit at Martin Marietta Information Systems in Chantilly, Va. "In the long and the short run, we're the winners."

One element that does get hammered by the vendors selling direct is the dealer channel, which is often regarded as unwieldy, if not downright inept.



Borland International's *Objectvision is one of the products receiving cut-rate pricing in current software promotions*

"None of [the price cutting] would happen if it wasn't for the historical incompetence of the reseller channel," Tarter said.

While vendors' margins may suffer from the lower price offered through direct mail, they are saving big money in marketing costs.

The result is that vendors have played fast and loose with bottom-line pricing:

- Through the end of April, Lotus will give a free copy of the $495 Ami Pro word processing package to buyers of the $695 1-2-3 Release 3.1 spreadsheet.
- For the next 10 weeks, Microsoft will charge only $129 for an upgrade to either Microsoft's Word for Windows or its Excel Version 3.0 spreadsheet for users who say they are currently using another word processing or spreadsheet product. The suggested retail price of the products is $495.
- Borland has set a retail price of $495 for its Objectvision package for Windows but will charge only $99.95 through May 31.

The moves follow a successful precedent. Part of the enormous success of Microsoft's popular Windows 3.0 graphical user interface is because of its price — now less than $100 at most retail outlets.

Microsoft has long promoted Windows through low pricing and bundling with hardware.

Lotus enhances Notes, buys top E-mail firm

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Lotus Development Corp. rolled out Release 2.0 of its Notes groupware product last week along with a program to get smaller starter packages of Notes into users' hands.

Lotus also announced plans to purchase privately held CC:Mail, Inc. for an estimated $25 million. Not only is CC:Mail's namesake electronic-mail package the leading E-mail package for personal computer users, but it also has overlap with Notes users.

Lotus said it will provide a mail gateway between Notes and CC:Mail. It also plans to synchronize directory services between the two, possibly settling on a single directory. Lotus added that it would support X.400, X.500 and X.25 standards in addition to IBM's Systems Network Architecture.

In addition, plans are in the works to move Notes to Apple Computer, Inc.'s Macintosh.

The additions to Notes are timely, given that the package is starting to draw the attention of would-be Officevision users following the latest setback for IBM's office environment. Officevision LAN Release 2.0 has been delayed indefinitely.

June Rokoff, vice president of Lotus' Communications and Information Services Group, said most of these users are looking at Notes as a complement to Officevision or similar systems.

Release 2.0 provides enhancements in five key areas: better connectivity and integration of remote laptops; expanded imaging capabilities, including support for IBM Super Video Graphics Array-compatible displays; applications integration with Microsoft Corp.'s Dynamic Data Exchange (DDE) and Object, Linking and Embedding (OLE) standards; enhanced security; and improvements to database management and network administration.

Engineering Notes

Notes can now import large bit-mapped files, paving the way for users to bring engineering drawings, documents and scanned pictures into its environment. Support for DDE and OLE means users can set up active links between Notes and other programs that support OLE.

Security was "a giant issue" with users, but the "biggest heat we took" on the first release of Notes was the lack of a smaller starter package for firms that wanted to test it or take a slow route to growth, Rokoff said.

Lotus has no plans to decrease its standard $62,500 per 200 users offering.

There are no plans to merge CC:Mail into Notes. The pending purchase positions Lotus well in the hot E-mail market, analysts said. "Lotus gets more bang for the buck from CC:Mail than it did for the $65 million purchase of Samna Corp.," said Nancy McSharry, an analyst at International Data Corp. in Framingham, Mass.

DEC to brave retail PC market again

BY MARYFRAN JOHNSON
CW STAFF

Digital Equipment Corp. is racing toward a showdown with its old nemesis: the retail channel for personal computers.

DEC officials confirmed last week that they are signing a series of new PC distribution agreements and preparing major marketing and sales efforts to draw attention to their PC multivendor integration abilities.

Among those efforts are plans to become a "major vendor" in the laptop market with the introduction, possibly later this year, of a DEC laptop computer running the MS-DOS operating system, a company spokesman said.

DEC President Kenneth H. Olsen "probably spends more time with our organization than any other in the company," said William Stowe, who manages consultant and analyst relations at DEC's PC business organization. "He is very enthusastic about what we're doing with PCs and PC networking."

Last week, DEC introduced another round of its "Pathworks" PC networking products, including internetworking products that allow users to run both Novell, Inc. Netware and the LAN Manager-based Pathworks client services concurrently from their DOS-based PCs.

"DEC has recognized that PCs and PC LANs are a vital part of its future," said Kevin O'Neill, vice president of research at Business Research Group in Newton, Mass. "They are positioning themselves with the right product to nicely dovetail the leading PC LAN environments into their robust Decnet environment."

Since 1988, DEC has sold PCs manufactured for it by Tandy Corp., but that relationship will be changing as well. "In the future, we may be developing PCs which have less of a Tandy content," Stowe said.

Analysts familiar with DEC's plans said the vendor cannot make money in the PC channel unless it starts buying subcomponents and doing the final assembly itself.

"I know DEC is desperate for new sources of revenue, but I wish them luck. It's an incredibly cutthroat business," said Dave Passmore, a network analyst at Ernst & Young in Fairfax, Va.

If DEC could break into new accounts with its own PCs, that could open the door to selling DEC Pathworks networking products and VAX/VMS server platforms, Passmore said. "It would create more demand for VMS, which is what Pathworks runs with," he noted.

Today, DEC sells about 35% of its PCs through indirect channels and the remainder through its own sales force. "We want to reverse those numbers," Stowe said.

The one channel DEC will not touch, however, is mass merchandising.

"You won't be walking into a K Mart or a Lechmere to buy a DEC PC," Stowe said. "But we are looking at some kind of retail channel through major outlets — maybe a Computerland or Businessland, although we haven't reached any conclusions yet," he added.

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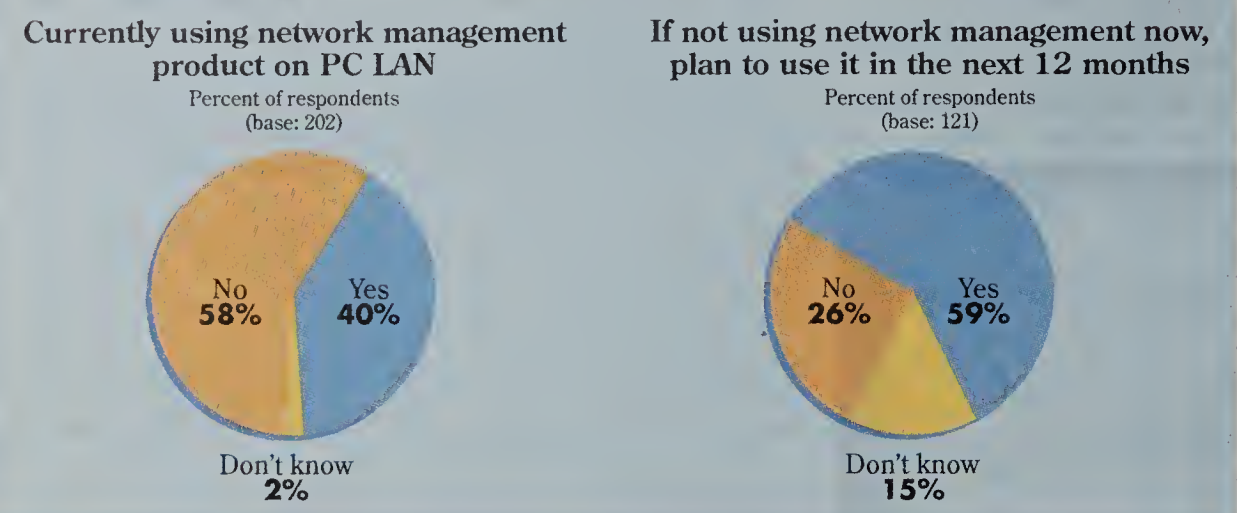
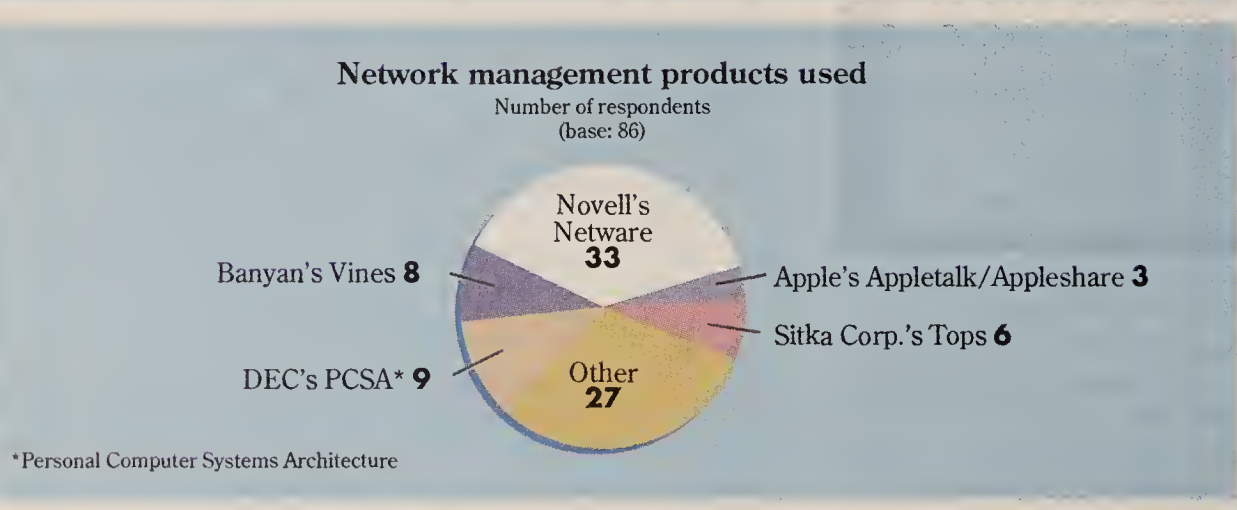
TRENDS

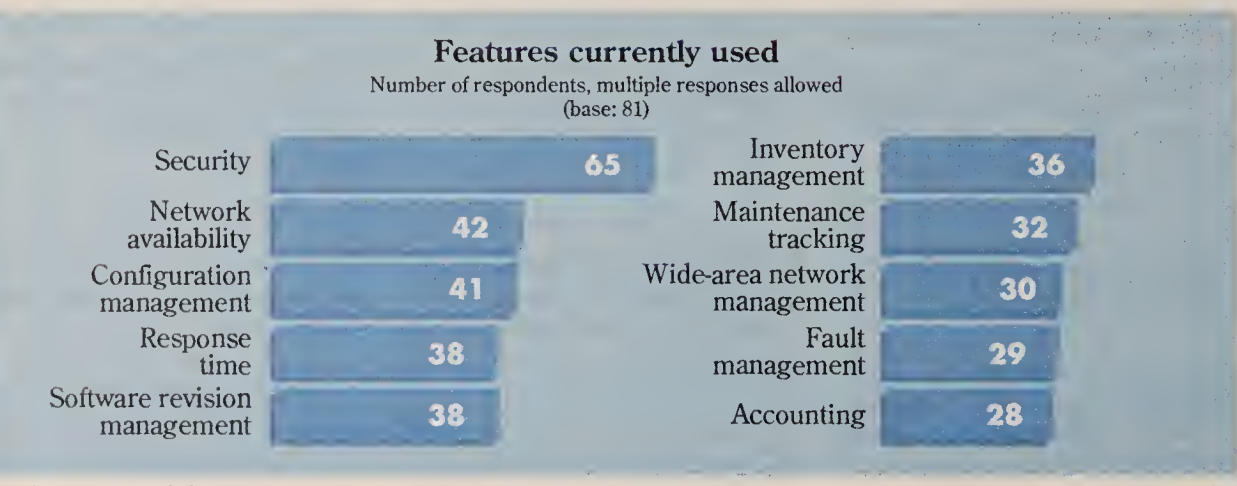
PC LAN Network Management

Sites with personal computer-based local-area networks are still in the early stages of introducing formal network management practices. Less than half claim to use any type of network management tool, but this is expected to increase as the PC LAN market experiences a 28% to 35% compound annual growth rate over the next five years

Only 40% of the sites surveyed use network management tools for their PC LANs. Of those that don't, 59% plan to implement such tools in the next 12 months







Source: Business Research Group, Newton, Mass.

CW Chart: Tom Monahan

NEXT WEEK

A new monthly feature in Manager's Journal, *The CEO View,* kicks off with an in-depth look at the technology philosophy of Federal Express CEO **Frederick W. Smith.** According to Smith, information technology is "the single most important element" that made Fedex the first services firm to win a Malcolm Baldrige National Quality Award.

George Lange

It has been said that everything is relative, and in databases, almost everything is relational — or going that way. Product Spotlight examines strategies for breaking down the walls between relational and nonrelational worlds and list recently shipped products. Buyers' Scorecard provides user ratings of top relational database management systems.

INSIDE LINES

No duplication on Portable OS/2

IBM Personal Systems executive Lee Reiswig, assistant general manager of programming, emphatically denied a published report last week that said IBM is working on a portable version of OS/2 designed to run on the RISC System/6000 separate from Microsoft. "There's zero truth to it," he said. "We are putting a team in place in Redmond, Wash., to work with Microsoft on Portable OS/2," he conceded, but added, "I don't have any efforts in place" to develop a separate version of Portable OS/2."

Can you say, 'A day late, a dollar short'?

Look for a major IBM statement of direction on systems software, including OS/2, Officevision, Systems Application Architecture and Microsoft's Windows, possibly in March but no later than June, sources in and close to IBM say. IBM apparently underestimated the need to respond to the Microsoft statement of direction on Windows, analysts say. Among the issues the announcement is expected to cover are: how IBM is positioning OS/2, its position on Windows and the unbundling of OS/2 Extended Edition.

Taking a shine to consolidation

More data center consolidations may be in the offing at Bankamerica. IS chief Marty Stein says the bank is heartened by the results of closing its Hong Kong data center last year and is studying consolidation possibilities for its five data centers in the U.S. He says he expects to make a recommendation to the bank by the end of the first quarter.

Dare we mention fault tolerance?

Not unlike the Loch Ness Monster, Novell's System Fault Tolerance Level III (SFT III) continues to make unexpected and fleeting appearances. A source at American Airlines who is "extremely anxious" about the development of network management goods says he recently saw a working version of SFT III. The long, long, long-awaited product reportedly mirrors entire servers rather than mere disks. A Novell spokesman has hinted that SFT III, now being beta-tested, could be released as early as this fall.

Nothing to write home about

After acquiring 3+Open last month from 3Com, Microsoft started crowing about having the rights to Demand Protocol Architecture (DPA). DPA, developed by 3Com, enables servers to load multiple protocols on demand. Despite Microsoft's "scoop," a source at 3Com noted that the essential DPA has been a part of LAN Manager since 1987, when 3Com licensed the network driver interface specifications to Microsoft.

They just put it together for fun

Wang insists that the quad-processor, Intel-based I486 board that was shown to a select few at the recent Uniforum show in Dallas was *not* a new product. According to a Wang spokeswoman, it was simply a "demonstration of technology." Analysts say otherwise, however, predicting a Wang product with quad-processing capability will be announced soon.

Outsourcing beginning to pale

Add Occidental Petroleum and Norton to the list of companies that have considered outsourcing operations and decided to stay in-house. At Occidental, an internal committee submitted the lowest bid for consolidating and running data centers. Norton did not go through a formal bid process but does not see potential savings from outsourcing, IS chief John Wilkins says.

DEC seems to be having a little trouble learning how to be fiscally stringent. Company letterhead envelopes arriving in Computerworld *staff mailboxes on Friday were addressed to reporters both present and departed, had the new 29¢ first class postage metered onto them and were sealed. They were also empty. If you can't rely on the mail, call News Editor Pete Bartolik for free at (800) 343-6474, fax what would be inside the envelope to (508) 875-8931, or avoid all loopholes and post it directly to our electronic mailboxes: Compuserve, 76537,2413; Prodigy, MHTS78A; and MCI Mail,* COMPUTERWORLD.

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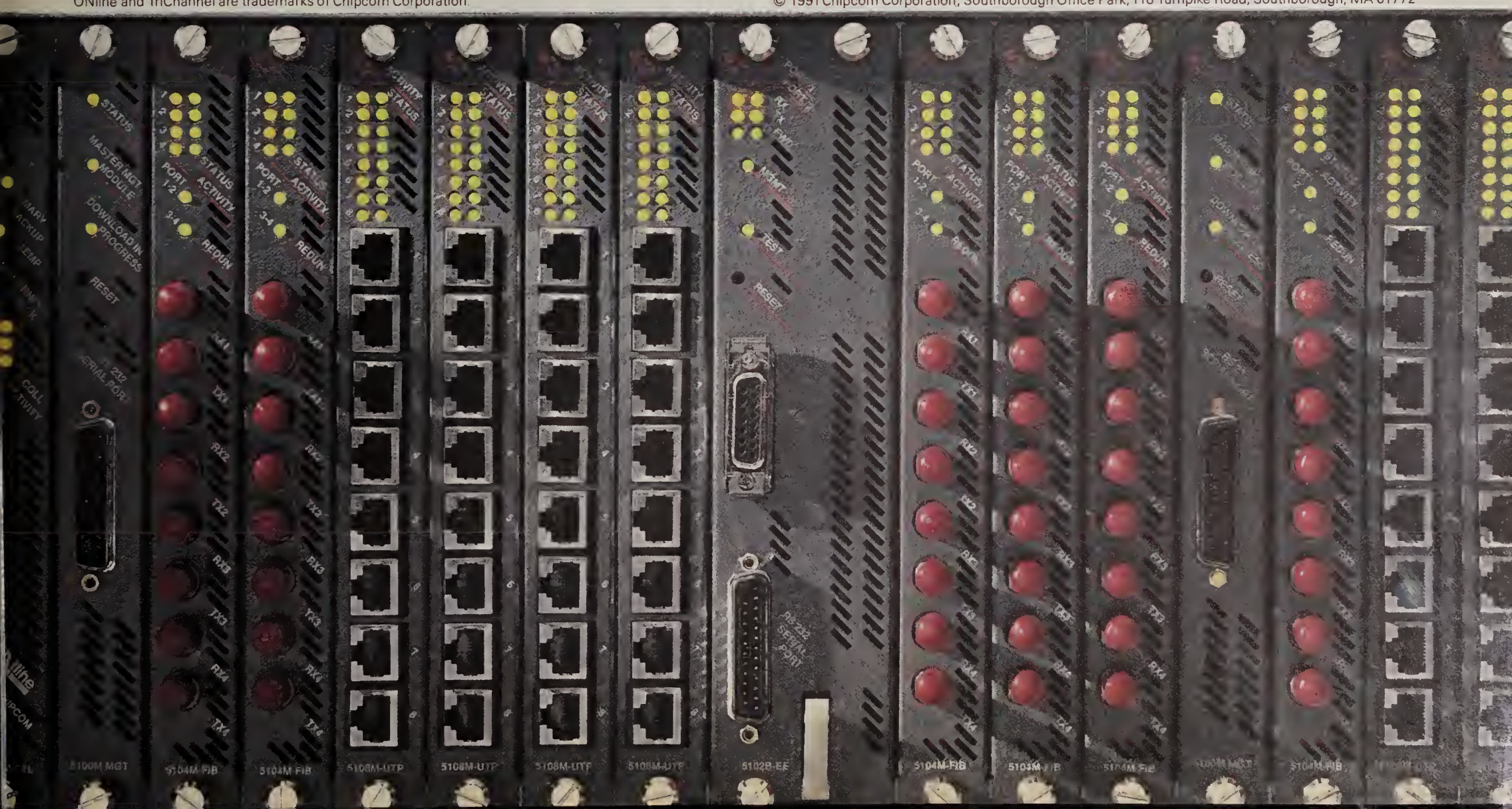

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